

**DEPARTMENT OF THE INTERIOR, CANADA**

HON. W. J. ROCHER, Minister; W. W. CORRY, Deputy Minister

**FORESTRY BRANCH—BULLETIN No. 44.**

R. H. CAMPBELL, Director of Forestry

**WOOD-USING INDUSTRIES OF THE  
MARITIME PROVINCES**

COMPILED BY

**R. G. LEWIS, B.Sc. F.**

**ASSISTED BY W. GUY E. BOYCE.**

**OTTAWA**

**GOVERNMENT PRINTING BUREAU**

**1914**

4

00925056



(COURTESY J. H. BENSON.)  
Sardine Fishing Boats : built by J. H. Benson & Son, Bear River, N.S.

6205200

DEPARTMENT OF THE INTERIOR, CANADA

HON. W. J. ROCHE, Minister; W. W. CORY, Deputy Minister

FORESTRY BRANCH—BULLETIN No. 44.

R. H. CAMPBELL, Director of Forestry.

WOOD-USING INDUSTRIES OF THE  
MARITIME PROVINCES

COMPILED BY

R. G. LEWIS, B.Sc. F.

ASSISTED BY W. GUY H. BOYCE.

OTTAWA  
GOVERNMENT PRINTING BUREAU  
1914

#### **ACKNOWLEDGMENT.**

This bulletin has been compiled from reports received from over six hundred manufacturers in the Maritime Provinces using wood as a raw material. The major part of the data was gathered by correspondence, supplemented by personal canvass and personal visits to many of the larger factories. In the great majority of cases, information was given without hesitation when the objects and nature of the bulletin were explained and it was made clear that the individual reports would be treated confidentially. The Forestry Branch wishes to thank the manufacturers for the interest they have taken in the matter, for their kindness in filling out the schedules sent them, and their courtesy toward the officers of the Forestry Branch who visited their factories.

### LETTER OF TRANSMITTAL.

FORESTRY BRANCH,

DEPARTMENT OF THE INTERIOR,

OTTAWA, December 10, 1913.

SIR.—I beg to transmit herewith a report on the 'Wood-using Industries of the Maritime Provinces,' and to recommend its publication as Bulletin 44 of this Branch.

This report contains an account of the quantity, value, and source of supply of the different kinds of wood used by the industries of the provinces of New Brunswick, Nova Scotia and Prince Edward Island. It includes detailed descriptions of the different classes of industries and of the properties of the woods used in those industries. It also takes up the ten kinds of wood used in greatest quantity in these provinces, and shows the extent to which the industries respectively use these. A classified directory of the manufacturers who supplied the data used in the compilation forms an appendix to the bulletin.

I have the honour to be, sir,

Your obedient servant,

R. H. CAMPBELL,

*Director of Forestry.*

W. W. CORY, Esq., C.M.G.,

Deputy Minister of the Interior,

Ottawa.



## TABLE OF CONTENTS

	PAGE
Introduction.....	11
Kinds of wood.....	12
Wood used in the Maritime Provinces by kinds of Wood (Table A).....	12
Wood purchased in the Maritime Provinces (Table B).....	13
Wood purchased outside of the Maritime Provinces.....	14
Detailed description of kinds of wood.....	15
Spruce (Table I).....	15
Pine (Table II).....	16
Hard Pine (Table III).....	17
Birch (Table IV).....	18
Balsam Fir (Table V).....	19
Hemlock (Table VI).....	20
Oak (Table VII).....	21
Maple (Table VIII).....	22
Beech (Table IX).....	23
Poplar (Table X).....	24
Douglas Fir.....	24
Tulip.....	25
Basswood.....	25
Ash.....	25
Cypress.....	26
Elm.....	26
Cedar.....	26
Chestnut.....	27
Mahogany.....	27
Tamarack.....	28
Cherry.....	28
Willow.....	28
Walnut.....	28
Hickory.....	28
Lignum-vitæ.....	29
Redwood.....	29
Butternut.....	29
Gum.....	29
Alder.....	29
Greenheart.....	30
Lancewood.....	30
Black Locust.....	30
Teak.....	30
Wood-using Industries—	
Wood used in the Maritime Provinces by Industries (Table D).....	31
Detailed descriptions of Industries—	
Agricultural Implements (Table 1).....	32
Boats and Shipbuilding (Table 2).....	33
Boxes and Crating (Table 3).....	35



	PAGE
Building Construction (Table 4).....	37
Car Construction (Table 5).....	40
Coffins, Caskets and Shells (Table 6).....	43
Cooperage (Table 7).....	44
Excelsior (Table 8).....	46
Foundry Boxes (Table 9).....	47
Fruit Boxes and Baskets (Table 10).....	48
Furniture (Table 11).....	49
Handles and Brush-backs (Table 12).....	50
Hardwood Flooring (Table 13).....	51
Machinery Parts (Table 14).....	52
Patterns (Table 15).....	52
Pulleys and Blocks (Table 16).....	54
Sporting Goods (Table 17).....	54
Vehicles (Table 18).....	55
Wood-pulp (Table 19).....	56
Miscellaneous (Table 20).....	57
 Proportion of kinds of wood used by Industries—	
Percentages of different kinds of wood used in the Maritime Provinces by various Industries (Table E).....	60
 Summary of Average Prices—	
Average prices paid by various Industries for different kinds of wood in the Maritime Provinces.....	62
 By-products.....	65
 Commodities manufactured from each kind of wood—	
Alder.....	67
Ash (unspecified).....	67
Ash (Black).....	67
Ash (Brown).....	67
Ash (White).....	67
Ash (Ground).....	68
Balsam Fir.....	68
Basswood.....	68
Beech (unspecified).....	68
Beech (Red).....	69
Birch (unspecified).....	69
Birch (Black).....	70
Birch (Gold).....	70
Birch (Paper).....	70
Birch (Red).....	70
Birch (Silver).....	70
Birch (Sweet).....	70
Birch (White).....	71
Birch (Wire).....	71
Birch (Yellow).....	71
Butternut.....	71
Cedar (Eastern White).....	72
Cedar (Western Red).....	72
Chestnut.....	72
Cherry.....	72

	PAGE
Cypress.....	72
Douglas Fir.....	72
Elm (White).....	73
Greenheart.....	73
Gum (Red).....	73
Hackmatack.....	73
Hemlock (unspecified).....	73
Hemlock (White).....	73
Hickory.....	74
Juniper.....	74
Lancewood.....	74
Larch.....	74
Lignum-Vite.....	74
Locust (Black).....	74
Mahogany.....	74
Maple (unspecified).....	74
Maple (Hard).....	75
Maple (Soft).....	75
Oak (unspecified).....	76
Oak (Red).....	76
Oak (White).....	77
Oak (Gray).....	77
Pine (unspecified).....	77
Pine (Norway).....	78
Pine (Oregon).....	78
Pine (Red).....	78
Pine (White).....	78
Pine (Native Yellow).....	79
Pine, Hard (unspecified).....	79
Pine, Hard (Longleaf).....	79
Poplar (unspecified).....	79
Poplar (Yellow).....	80
Redwood (California).....	80
Spruce (unspecified).....	80
Spruce (Red).....	81
Spruce (Black).....	81
Spruce (White).....	81
Tamarack.....	81
Tulip.....	82
Walnut.....	82
Whitewood.....	82
Willow.....	82

## Classified Directory of Manufacturers—

Agricultural Implements.....	83
Boats and Ship-building.....	83
Boxes and Crating.....	84
Building Construction.....	86
Car Construction.....	89
Coffins, Caskets and Shells.....	89
Cooperage.....	89
Excelsior.....	93
Foundry Boxes.....	93

	PAGE.
Fruit Boxes and Baskets.. . . . .	93
Furniture.. . . . .	93
Handles and Brush-Backs.. . . . .	94
Hardwood Flooring.. . . . .	95
Machinery Parts.. . . . .	96
Patterns.. . . . .	96
Pulleys and Blocks.. . . . .	97
Sporting Goods.. . . . .	98
Vehicles.. . . . .	98
Wood-pulp.. . . . .	100
Miscellaneous.. . . . .	100

## LIST OF ILLUSTRATIONS.

	PAGE
Sardine Fishing Boats.. . . . .	<i>Frontispiece</i>
Thresher.. . . . .	32
Onion Box Shooks for Export to Bermuda.. . . . .	36
Sash and Door Factory: Machines in operation.. . . . .	38
Interior of unfinished Passenger Coach.. . . . .	41
Interior of finished Passenger Coach.. . . . .	41
Snowplough Framework.. . . . .	42
Finished Snowplough.. . . . .	42
Piling Balsam Fir Heading for Drying.. . . . .	45
Balsam Fir Heading Packed for Shipment.. . . . .	45
Excelsior Machine.. . . . .	46
Berry Boxes, Crates and Basket Covers of Birch and Poplar Veneer.. . . . .	48
Sewer-pipe and Fire-grate Patterns.. . . . .	53
Paper Birch Dowel Rods Bundled for Export.. . . . .	59
Dowel-Turning Machines.. . . . .	59
Patterns for Castings.. . . . .	64
Turning White-Pine Pump-Joint.. . . . .	64

# WOOD-USING INDUSTRIES

OF THE

## MARITIME PROVINCES

The necessity of forest conservation is a question which can be discussed from many view-points. To consider the forest as a whole and to discuss its effect on climate and stream-flow is not the object of this publication, which is rather to demonstrate the necessity of the forest as a source of wood material.

Dr. B. E. Fernow, in his *Economics of Forestry*, says: 'Our civilization is built on wood. From the cradle to the coffin, in some shape or other, it surrounds us as a convenience or a necessity.' This bulletin will serve to accentuate this statement in showing the many different uses to which wood is put, and the importance of the different uses.

Leaving aside the question of exports of lumber, pulpwood and other products of the forests, it is evident that the Maritime Provinces of Canada, for their own wood-using industries, require a total of at least two hundred million (200,000,000) feet, board measure, of raw material.

A glance at the list will show the importance of these industries. They include all classes of manufacture where wood, in the form of rough lumber or raw material, is used, whether in the making of wooden commodities, in the making of commodities partly of wood and partly of some other material, in the making of the commodities where wood is needed for a pattern or mould, or in the packing of commodities of all kinds, from granite to confectionery.

In fact it would be impossible to name an industry which could be carried on without the use of wood, directly or indirectly. This bulletin, however, deals only with the more direct uses of this material.

In advancing the many uses of wood as an argument in favour of forest conservation, one is often met with the statement that other materials are being substituted so rapidly for wood that this material will soon fall into disuse. The substitution of steel and concrete for wood as a structural material is a favourite example. Every yard of concrete used for this purpose requires a certain quantity of lumber for moulds. Every ton of iron or steel used requires a certain quantity of wood for its mining and manufacture. The substitution of other materials for wood in many cases tends to increase the use of wood itself rather than to decrease it.

On account of its peculiar physical qualities wood is used for many purposes which would not permit of the substitution of other material. The ease with which wood can be worked into shape is perhaps the one quality which makes this material superior to all others; but the combination of such qualities as strength and hardness relative to weight, toughness, stiffness and elasticity, non-conductivity of heat and electricity, gives us a material for which no substitute has yet been found. In other materials these qualities can be had separately, but never combined in one. Once having realized the value of this material and the facts that it is cheaper than other similar materials, and that it is found practically everywhere on the earth and can be produced and reproduced at will, one begins to realize the practical value of a forest policy which will provide for a future supply.

## KINDS OF WOOD.

TABLE "A" - SUMMARY OF WOOD USED IN THE MARITIME PROVINCES, BY KINDS OF WOOD.

Kind of Wood.	Per Cent.	Quantity Used Annually	Total Value.	Average Value.	Supply by Regions.			
					Maritime Provinces.	Other Canadian Provinces.	United States.	Foreign.
		M Ft. B.M.	\$	cts.	M Ft. B.M.	M Ft. B.M.	M Ft. B.M.	M Ft. B.M.
Total	100.0	204,463	3,684,142	18.02	179,301	2,017	22,920	225
Spruce	56.9	115,269	1,591,535	13.69	116,212	27		
Pine	11.8	24,095	568,196	23.58	23,838	217		40
Hard Pine	8.8	17,958	761,538	31.27				17,958
Birch	6.4	13,159	235,053	17.86	13,111	20		25
Balsam Fir	5.0	10,273	121,080	11.79	10,273			
Hemlock	3.0	6,032	74,755	12.39	6,032			
Oak	1.9	3,789	155,995	41.17	889	36	2,864	
Maple	1.8	3,686	64,859	17.60	3,686			6
Beech	1.0	2,091	37,913	18.13	2,091			
Poplar	0.9	1,916	25,720	13.42	1,916			
Douglas Fir	0.5	943	39,428	41.81		924	20	
Talipot	0.4	841	40,734	48.44		123	718	
Basswood	0.4	752	26,992	35.89	41	396	315	
Ash	0.3	737	15,816	21.46	548	67	122	
Cypress	0.2	473	29,001	62.58			473	
Elm	0.2	392	11,420	31.55	250	86	26	
Cedar	0.1	286	25,650	89.69	174	111	1	
Chestnut	0.1	221	5,218	23.61			221	
Mahogany	0.1	218	32,943	151.11				218
Tamarack	0.1	181	8,577	19.76	181			
Cherry	*	113	11,297	99.97		9	104	
Willow	*	27	600	22.22	27			
Walnut	*	13	1,370	105.38			13	
Hickory	*	9	605	67.22		2	7	
Lignum-vita	*	7	1,650	235.71				
Redwood	*	5	375	75.00			5	
Butternut	*	5	70	14.00	5			
Gum	*	2	143	71.50			2	

Less than one-tenth of one per cent.

The wood-using industries of the Maritime Provinces demand a supply of at least two hundred million (200,000,000) feet, board measure, of raw material. Twenty-eight different kinds of wood make up this total, sixteen of which are native woods grown in the provinces themselves. Many of these kinds of wood are in reality groups of species, spruce, for instance, being made up of three, pine of three, birch of three or more, and so on through the list. There are probably over fifty different species of trees which contribute to this total.

In some of the industries a particular kind of wood is used because of some particular characteristic which best fits it for the purpose, on account of which no substitute can be found for that wood. In other cases a wood is used because its use has become a habit or because there is a prejudice existing in its favour which has not been overcome although it may not be particularly well suited for the purpose and another cheaper or more abundant wood could be substituted for it.

In the majority of cases, perhaps, the woods used are those which are cheapest and most abundant in the immediate neighbourhood, and whose use is, therefore, most economical from the present standpoint.

In many cases, such woods are well suited to the purpose to which they are put. Manufacturers in the Maritime Provinces are proficient in adapting native woods to their own uses, as is shown by the fact that only 12.3 per cent of the wood used is purchased outside the three provinces.

TABLE B. WOOD PURCHASED IN THE MARITIME PROVINCES.

Kind of Wood.	Total Quantity Purchased.	Source of Supply.		
		New Brunswick.	New Brunswick.	Prince Edward Island.
		N.S.	N.B.	P.E.I.
		M.	F.	M.
Total	179,391	89,160	88,838	1,393
Spruce	116,242	56,998	58,747	497
Pine	23,838	11,003	12,803	32
Birch	13,114	8,968	3,841	302
Balsam Fir	19,278	3,479	6,780	304
Hemlock	6,052	3,996	1,996	40
Maple	3,680	1,083	2,544	53
Beech	2,691	1,184	851	56
Poplar	1,916	1,497	597	2
Oak	889	867	22	
Ash	548	70	475	3
Elm	250	212	26	2
Tamarack	181	173	6	2
Cedar	174	20	154	
Basewood	41		41	
Willow	27		27	
Butternut	5		5	

TABLE 'C.'—WOOD PURCHASED OUTSIDE OF THE MARITIME PROVINCES

Kind of Wood.	Total Quantity Purchased.	Source of Supply.							
		British Columbia.	Ontario.	Quebec.	United States.	Foreign.			
		M Ft. B.M.	M Ft. B.M.	M Ft. B.M.	M Ft. B.M.	M Ft. B.M.	M Ft. B.M.	M Ft. B.M.	M Ft. B.M.
Total .....	25,162	924	752	341	22,920	225			
Hard Pine.....	17,958				17,958				
Oak .....	2,900		31	5	2,864				
Douglas Fir .....	943	923			20				
Tulip .....	841		123		718				
Basewood .....	711		282	114	315				
Cypress.....	473				473				
Pine.....	257		155	62	40				
Chestnut.....	221				221				
Mahogany .....	218					218			
Ash .....	189		55	12	122				
Cherry .....	113		8	1	104				
Cedar .....	112	1		110	1				
Elm .....	112		86		26				
Birch .....	45		10	10	25				
Spruce .....	27			27					
Walnut .....	13				13				
Hickory.....	9		2		7				
Lignum-vitæ .....	7					7			
Maple .....	6				6				
Redwood.....	5				5				
Gum .....	2				2				

## DETAILED DESCRIPTIONS OF KINDS OF WOOD.

TABLE I. SPRUCE.

Industry.	Per Cent.	Quantity.	Value.	Average Value.	Supply by Regions.			
					Maritime Provinces.	Other Canadian Provinces.	United States.	Foreign.
		M Fc.B.M.	\$	* cts.	M Fc.B.M.	M Fc.B.M.	M Fc.B.M.	M Fc.B.M.
Total .....	100.0	116,260	1,591,535	13.69	116,242		27	
Wood pulp.....	33.0	38,318	355,491	9.28	38,318			
Building Construct'n	32.1	37,370	574,535	15.37	37,370			
Cooperage.....	14.3	16,644	299,092	17.97	16,644			
Boxes.....	9.8	11,397	142,894	12.54	11,372		25	
Cars.....	8.4	9,758	171,577	17.58	9,758			
Boats.....	0.9	1,080	21,980	20.35	1,080			
Furniture.....	0.5	558	7,294	13.07	556		2	
Miscellaneous.....	0.3	300	4,554	15.18	300			
Coffins.....	0.2	250	3,649	14.60	250			
Foundry Boxes.....	0.2	293	4,262	18.29	293			
Vehicles.....	0.1	158	2,622	16.59	158			
Machinery Parts.....	0.1	93	1,346	14.69	93			
Patterns.....	*	52	1,290	24.81	52			
Agr. Implements.....	*	50	847	16.94	50			
Handles.....	*	6	72	12.00	6			
Fruit Baskets.....	*	2	10	5.00	2			

\* Less than one-tenth of one per cent.

The spruce used in the Maritime Provinces is largely red spruce (*Picea rubra*), with smaller quantities of white spruce<sup>1</sup> (*Picea canadensis*) and black spruce (*Picea mariana*).

Generally speaking, spruce wood is light, soft, stiff, moderately strong and tough. It has a fine even straight grain, is non-resinous and tasteless. The wood is not durable, but it seasons well, holds nails well, and is comparatively easy to work.

Most manufacturers do not distinguish between the different species of spruce and do not demand any one in particular. It is probable that the greater part of the material used in the Maritime Provinces is red spruce, as this tree is the most abundant in this region. Some industries demand this wood, which is considered the most valuable of the three species on account of its fine grain.

White spruce is a coarser wood, but of a lighter colour, and is comparatively rare in Nova Scotia and more abundant in New Brunswick. It is abundant in other parts of Canada and is the most important timber tree of this country, heading the list in lumber and pulp production.

Black spruce is stronger, harder and more durable than the other two species, and is abundant in Nova Scotia, although the trees, as a general rule, are smaller in size than the red spruce. This is a valuable pit-prop material on account of its durability. Black spruce is also abundant in other parts of Canada.

Spruce heads the lists of woods used in the industries in the Maritime Provinces. Over one hundred million feet, or 57 per cent of the total quantity of wood used in a year, is of this kind. Spruce and native pine together make up over two-thirds of all the wood used.

<sup>1</sup> White spruce is sometimes called 'cat' spruce in Nova Scotia, and is often confused with balsam fir in Cape Breton.



In 1912 the Maritime Provinces produced 557,412,000 feet, board measure, of lumber of this material, or over a third of all the spruce lumber produced in Canada. Over 38,318,000 feet, board measure, of spruce pulpwood are cut annually in Nova Scotia and New Brunswick. With the addition of the quantities used for cross-ties, poles, mine props, and other purposes, the total annual spruce production of the Maritime Provinces could probably exceed three quarters of a billion (750,000,000) feet, board measure.

Spruce is used in sixteen out of the twenty industries enumerated in this bulletin, and leads the list in five of these.

Pulp manufacturers, manufacturers of building material, cooperage and boxes use more spruce than any other material, and take together almost 90 per cent of all the spruce used.

Only 27,000 feet of spruce were reported as having been purchased outside the Maritime Provinces, and this small quantity came from Quebec.

TABLE II. PINE.

Industry	Per Cent	Quantity	Value	Average Value	Supply by Regions			
					Maritime Provinces	Other Canadian Provinces	United States	Foreign
		M.F.B.M.	\$	\$ per M.F.B.M.	M.F.B.M.	M.F.B.M.	M.F.B.M.	M.F.B.M.
Total	100.0	24,095	568,196	23.58	23,838	217	40	
Building & Construction	60.4	14,543	381,516	26.23	14,463	40	40	
Cars	15.6	3,754	68,246	18.18	3,754			
Boxes	8.2	1,982	26,981	13.61	1,982			
Boats	5.3	1,283	25,619	19.97	1,283			
Patterns	3.5	850	20,981	24.67	681			
Coffins	2.8	680	14,379	21.15	680			
Cooperage	2.2	540	12,091	22.04	540			
Foundries	0.7	161	3,315	20.59	15	8		
Foundry Boxes	0.6	141	2,822	20.01	141			
Agricultural Implements	0.2	41	750	18.29	41			
Velocipedes	0.2	39	1,110	28.46	39			
Machinery Parts	0.1	26	680	26.15	26			
Wagon Sides	0.1	22	100	4.57	2			
Poles	0	12	28	18.17	1			
Miscellaneous	0	11	315	28.64	11			
Hardware	0	1	10	10.00	1			

\* Less than one-tenth of one per cent.

Native pine is the second most important wood used in the Maritime Provinces. This includes white pine (*Pinus strobus*) for the most part, and smaller quantities of red pine<sup>1</sup> (*Pinus resinosa*), jack pine (*Pinus Banksiana*) and, perhaps, pitch pine (*Pinus rigida*).

White pine is considered the best of these, and commands the highest prices. This wood is soft and weak except in relation to its weight, as the wood is exceptionally light. It has a fine even straight grain, and is moderately resinous. It is more durable than spruce, and seasons easily and rapidly. White pine is probably the best wood native to the Maritime Provinces for holding its shape, as it contracts and expands but little through changes in humidity. White pine is found in all three

pine is often called Norway and yellow pine.

provinces, but is cut in greatest quantity in New Brunswick. During 1912, the three maritime provinces cut over 55,788,000 feet, board measure of white pine lumber.

Red pine is a stronger material, more resinous, harder to work, but perhaps more valuable in some kinds of heavy structural work. It is found in all three provinces, which contributed together 2,818,000 feet of the total cut of this lumber in Canada in 1912.

Jack pine is a much inferior wood to either of the preceding, being weak, brittle and perishable and seldom found clear of knots in large dimensions.

Pitch pine (*Pinus rigida*) may be used locally in parts of New Brunswick, but is of no commercial value, either in quality or quantity.

The native pines compose 11.8 per cent of the woods used in the Maritime Provinces in an average year, and form a total of over 24,095,000 feet. The supply of this wood in the region is being rapidly depleted, as is shown by the fact that 257,000 feet of pine are imported into the three provinces in a year for use in these industries. Of this quantity, the greater part comes from Ontario, with smaller quantities from Quebec and the United States. Of the wood cut in the Maritime Provinces, New Brunswick supplies the greatest part.

Native pine was used in sixteen industries, being equal to spruce in the diversity of its uses. Of these sixteen industries, pine heads the list in three, and is used in greatest quantities by the manufacturers of building material, who take 60.4 per cent of the total.

Pine was one of the most expensive native softwoods used in quantity at an average price of \$23.58.

TABLE III. HARD PINE.

Industry.	Per Cent.	Quantity.	Value.	Average Value.	Source of Supply			
					Maritime Provinces.	Other Canadian Provinces.	United States.	Foreign.
		M Ft.B.M.	\$	\$ cts.	M Ft.B.M.	M Ft.B.M.	M Ft.B.M.	M Ft.B.M.
Total	100.0	17,958	561,738	31.27			17,958	
Cars	96.1	17,256	533,133	30.90			17,256	
Building Constr'n	3.1	564	21,971	38.96			564	
Boats	0.7	118	5,561	47.13			118	
Machinery Parts.	0.1	20	873	43.65			20	

Hard pine is a collective term which includes the commercial hard pines of the Southeastern States. The greater part of the material on the market is made up of longleaf pine (*Pinus palustris*), the close-grained, heavy wood used for structural purposes; Cuban pine (*Pinus heterophylla*), of similar qualities to longleaf, but comparatively rare; shortleaf pine (*Pinus echinata*), a coarser-grained, softer material, and loblolly pine (*Pinus taeda*), the coarsest and softest material of the four. The wood of these four trees is difficult to separate, in fact it is almost impossible to separate them under different growth-conditions when a slow-growing close-grained piece of shortleaf cannot be distinguished from longleaf. The wood of these four species is known by a multitude of trade names, including, besides the four mentioned, 'yellow pine,' 'pitch pine,' 'Georgia pine,' 'southern pine,' 'North Carolina pine,' and many others. As a rule, the wood is sold under the four names given above, which serve to indicate the quality of the wood rather than the species of tree from which it was cut. This wood grows only in the Southern States, and is not found north of Maryland.

Almost eighteen million feet of this material is imported annually into the Maritime Provinces, coming third on the list and forming 8.8 per cent of the total quantity of wood used. This wood is used by four industries, heading the list in the manufacture of cars and coaches. These manufactures take the greater part of the material imported, consuming over 17,250,000 feet. Smaller quantities are used in building construction and the manufacture of boats and heavy machinery.

A lengthy controversy has been going on for some years as to the relative strength-values of this wood and Douglas fir. So far it has never been conclusively proved that longleaf pine is stronger than well selected Douglas fir.

Of the woods imported into the Maritime Provinces, hard pine heads the list, forming 71.4 per cent of the total.

TABLE IV - BIRCH

Industry.	Per Cent.	Quantity	Value.	Average Value.	Source of Supply.			
					Maritime Provinces.	Other Canadian Provinces.	United States.	Foreign.
		M F. B. M.	\$	cts.	M F. B. M.	M F. B. M.	M F. B. M.	M F. B. M.
Total.....	100.0	18,150	235,053	17.86	18,114	20	25	
Hardwood Flooring.....	20.6	3,505	61,880	17.66	3,505			
Furniture.....	15.4	2,082	29,043	14.29	2,032			
Cars.....	13.4	1,796	31,790	17.69	1,796			
Building Constr'n.....	13.3	1,751	30,164	20.62	1,796			
Miscellaneous.....	9.8	1,294	15,058	11.73	1,284	20	25	
Cooperage.....	8.4	1,101	27,470	24.94	1,101			
Boats.....	4.5	588	12,067	20.52		588		
Vehicles.....	4.1	541	10,588	19.57	541			
Handles.....	1.8	231	4,265	18.46	231			
Machinery Parts.....	1.2	160	3,645	22.78	160			
Agricultural Im- plements.....	0.7	93	1,560	16.87	93			
Boxes.....	0.3	46	610	13.26	46			
Pulleys.....	0.2	27	450	20.37	27			
Fruit Baskets.....	0.1	19	218	11.47	19			
Sporting Goods.....	0.1	8	105	13.12	8			
Foundry Boxes.....	0.1	7	112	16.00	7			

Birch is the most important hardwood in the Maritime Provinces, as it is also in Canada as a whole. Of the native material the greater part is probably yellow birch<sup>1</sup> (*Betula lutea*), with smaller quantities of paper<sup>2</sup> birch (*Betula alba* var. *papyrifera*), sweet birch<sup>3</sup> (*Betula lenta*) and gray or wire birch (*Betula populifolia*). The wood imported from other parts of Canada would be of a similar nature, while that purchased in the United States is probably made up of sweet birch almost entirely.

In general, the wood of birch is fairly hard and strong, with a fine even grain and texture. It is very perishable in moist situations, and checks and shrinks considerably in seasoning. The wood is easily worked, takes a high polish and has a pleasing figure and appearance when finished.

<sup>1</sup>Yellow birch is also called gold birch and red birch.

<sup>2</sup>Paper birch is also called silver birch and canoe birch.

<sup>3</sup>Sweet birch is also called black birch.

Sweet birch possesses these good qualities in the highest degree and is considered the best lumber species. Yellow birch is lighter in colour and weight and has a greater percentage of the less valuable sapwood. Paper birch is tougher than either of the preceding, and its wood is very light and white in colour. Gray birch is almost entirely confined to the Maritime Provinces in Canada. Its wood is grayish-white in colour and probably the toughest of all the birches, but, at the same time, the least durable in moist situations.

Birch, like spruce and pine, is used in sixteen of the wood-using industries of the Maritime Provinces. This wood heads the list in seven industries and is used in greatest quantities by the manufacturers of hardwood flooring, furniture, cars and building material, who together use 68.7 per cent of the total quantity used in the region.

Only 45,000 feet of birch were reported as having been purchased outside of the Maritime Provinces. Of this small quantity (0.3 per cent of the total) the greater part came from the United States, and the remainder from Ontario and Quebec.

TABLE V. BALSAM FIR.

Industry.	Per Cent.	Quantity.	Value.	Average Value.	Source of Supply			
					Maritime Provinces.	Other Canadian Provinces.	United States.	Foreign.
		M F. C. B. M.	\$	s cts	M F. C. B. M.	M F. C. B. M.	M F. C. B. M.	M F. C. B. M.
Total.....	100.0	10,273	121,080	11.79	10,273			
Wood-pulp.....	43.4	4,462	39,903	8.94	4,462			
Boxes.....	23.9	2,454	26,680	10.87	2,454			
Cooperage.....	17.5	1,795	32,866	18.31	1,795			
Building Construction.....	13.5	1,390	19,877	14.30	1,390			
Miscellaneous.....	1.0	100	627	6.27	100			
Coffins.....	0.3	35	521	14.80	35			
Boats.....	0.3	32	567	17.72	32			
Handles.....	.	4	48	12.00	4			
Vehicles.....	.	1	10	10.00	1			

\* Less than one-tenth of one per cent.

Balsam fir, with a total of 10,273,000 board feet, forms five per cent of the total quantity of wood used, and comes fifth on the list. This wood is all cut from one species in Eastern Canada (*Abies balsamea*), and is found all over Northeastern America. The wood is soft, weak and perishable, light in colour, coarse in grain and texture, but possesses the long tough colourless fibre which make a wood valuable for paper-making.

The use of this material for purposes other than pulp manufacture has increased more rapidly in the Maritime Provinces than in Ontario and Quebec, and the wood takes the place of hemlock for rough construction.

Manufacturers in Western Canada might find new uses for this material, which has been hitherto considered as of little commercial importance except for pulp.

Nine industries use balsam fir lumber, although the wood does not head the list in any of these. The manufacturers of pulp, boxes, cooperage and building material together use 98.3 per cent of the wood, which is the cheapest used in the Maritime Provinces.

<sup>1</sup> Balsam fir is often called 'white spruce' in Cape Breton and 'var' in Prince Edward Island.

TABLE VI. HEMLOCK.

Industry.	Per Cent.	Quantity	Value.	Average Value.	Source of Supply.			
					Maritime Provinces.	Other Canadian Provinces.	United States.	Foreign
		M Ft. B. M.	\$	cts.	M Ft. B. M.	M Ft. B. M.	M Ft. B. M.	M Ft. B. M.
Total	100.0	6,032	74,755	12.39	6,032			
Building Constr'n	74.5	4,493	60,352	13.43	4,493			
Boxes	15.3	922	8,174	8.87	922			
Wood-pulp	8.3	499	4,500	9.02	499			
Coffins	0.9	53	7	14.04	53			
Cooperage	0.4	25	45	18.08	25			
Boats	0.4	22	275	12.50	22			
Cars	0.2	12	168	14.00	12			
Vehicles	*	5	80	16.00	5			
Agr. Implements	*	1	10	10.00	1			

\* Less than one-tenth of one per cent.

Hemlock (*Tsuga canadensis*) forms three per cent of the total quantity of wood used and makes a total of 6,032,000 feet, board measure. Hemlock is a hard, stiff wood which holds nails well and is non-resinous, otherwise it has little to recommend it except its cheapness and abundance. The wood is brittle, cross-grained, harsh and splintery, with a fine grain and coarse texture. Its durability lies between that of pine and spruce. The lumber is difficult to season, as it is liable to warp and check. Cup shakes and knots are frequent defects. Hemlock trees that grow on well-drained upland soils have much superior lumber, and are often called 'white hemlock,' although this is not a distinct species.

Hemlock, on account of its strength and cheapness, is a favourite material for rough construction work. It is used in greatest quantity in building construction, which industry consumes almost three-quarters of the total. Altogether, nine industries use this wood, all of which is purchased within the Maritime Provinces. Nova Scotia supplies 66.2 per cent, New Brunswick 33.1 per cent, and Prince Edward Island the small remainder. Next to balsam fir, hemlock is the cheapest wood used in this region.

TABLE VII-OAK.

Industry.	Per Cent.	Quantity.	Value.	Average Value.	Source of Supply.			
					Maritime Provinces.	Other Canadian Provinces.	United States.	Foreign.
		M Ft.B.M.	\$	cts.	M Ft.B.M.	M Ft.B.M.	M Ft.B.M.	M Ft.B.M.
Total	100.0	3,789	153,995	41.17	889	36	2,864	
Cars	64.1	2,427	84,397	34.74	52		2,375	
Boats	11.9	450	19,125	42.50	437	10	3	
Furniture	11.6	439	21,842	49.75	188	5	246	
Building Constrn	9.5	360	25,925	72.01	120	19	221	
Vehicles	1.6	62	2,185	35.24	61		1	
Hardwood Floors								
Doors	1.1	42	1,475	35.12	30		12	
Patterns	0.1	5	300	180.00				
Coffins	0.1	2	100	50.00				
Agr. Implements	*	1	25	25.00	1	2		
Machinery Parts	*	1	111	111.00				

\* Less than one-tenth of one per cent.

Over three-quarters (75.6 per cent) of the oak used in the Maritime Provinces is imported from the United States. Ontario and Quebec supply another one per cent, and the remainder (889,000 feet) is native material, which comes largely from Nova Scotia. More of oak is imported than of any other hardwood, and this material comes second only to hard pine on the list of imported woods.

The native oak is mostly red oak (*Quercus rubra*), with small quantities of white oak<sup>1</sup> (*Quercus alba*), although this last species is now commercially extinct in the Maritime Provinces, as it soon will be in other parts of Canada. The imported material is a mixture of these two species and others of less commercial importance, with white oak predominating for the more ornamental purposes and in places where maximum strength is required. Some of this material is sawn to exhibit the popular 'quarter-cut' effect, which is so much desired for furniture and interior finish.

For most vehicle and boat work, red oak is used as much as white and many manufacturers do not differentiate between the species at all.

The superior qualities of oak wood have been well known for centuries. The wood of white oak is heavier, stronger, denser, tougher, more durable and easier to season than that of red oak. The grain is finer and more even, and the rays which give the attractive appearance to quarter-cut material are higher and more conspicuous than in red oak. The wood of red oak is perhaps more easily cooled than white oak, and wears smoother under friction making this material superior for handles of ploughs and other agricultural implements.

The wood of red oak is more porous than that of white, so much so that this material cannot be used for barrels or casks to contain alcoholic liquors. So far no satisfactory substitute has been found for white oak for this purpose.

Oak is used in ten of the classes of industries in this bulletin. The manufacturers of cars use over two million (2,427,000) feet, board measure, of this material annually, and of this they import 2,375,000 feet from the United States. Manufacturers of boats, furniture and building material also used considerable quantities of oak.

<sup>1</sup> Native white oak is often called 'gray oak'.

TABLE VIII—MAPLE.

Industry.	Per Cent.	Quantity.	Value.	Average Value.	Source of Supply			
					Maritime Provinces.	Other Canadian Provinces.	United States.	Foreign.
		M Ft. B.M.	\$	¢	M Ft. B.M.	M Ft. B.M.	M Ft. B.M.	M Ft. B.M.
Total.....	100.0	3,686	64,859	17.60	3,680		6	
Hardwood Floor- ing.....	39.3	1,448	23,745	16.40	1,448			
Handles.....	28.6	1,055	16,604	15.74	1,055			
Furniture.....	10.0	368	4,950	13.45	368			
Boats.....	6.5	239	5,280	22.09	239			
Building Constr'n	6.4	236	4,274	18.11	236			
Vehicles.....	2.2	83	1,521	18.33	83			
Cars.....	2.2	80	4,000	50.00	80			
Agr. Implements	1.8	65	1,525	23.46	65			
Cooperage.....	1.5	56	1,323	23.62	56			
Boxes.....	0.7	25	625	25.00	25			
Sporting Goods..	0.4	16	327	20.44	16			
Machinery Parts	0.4	13	615	47.31	7		6	
Miscellaneous...		2	70	35.00	2			

\* Less than one-tenth of one per cent.

Maple is the second most important native hardwood of the Maritime Provinces. Of the total of 3,686,000 feet used in the industries, all but 6,000 feet of American lumber was native material, from New Brunswick for the most part.

The species included sugar, or hard maple (*Acer saccharum*) and two soft maples—red maple (*Acer rubrum*) and silver maple (*Acer saccharinum*).

The wood of sugar maple is noted for its stiffness and hardness above all other qualities. It is also strong and tough, with a fine texture and occasional curly, wavy and 'bird's eye' effects. The lumber is rather slow to season, shrinks considerably and is liable to check during seasoning, although it seldom warps or checks after seasoning. The wood is perishable in moist situations. For decorative work, maple takes an excellent polish, and is easily turned.

Red maple is tougher than sugar maple, but is softer, lighter and more liable to defect. Silver maple is seldom used commercially and makes an inferior lumber.

Maple is characterized by the diversity of its uses. This wood is demanded by thirteen industries and leads the list in two of these. Over 1,448,000 feet of the maple goes into hardwood flooring, and over 1,055,000 feet into the manufacture of handles and brush-backs. These two industries utilize 67.9 per cent of the total quantity consumed in a year.

TABLE IX—BEECH.

Industry.	Per Cent.	Quantity.	Value.	Average Value.	Source of Supply.			
					Maritime Provinces.	Other Canadian Provinces.	United States.	Foreign.
		M Ft.B.M.	\$	cts	M Ft.B.M.	M Ft.B.M.	M Ft.B.M.	M Ft.B.M.
Total.....	100 0	2,091	37,913	18 13	2,091			
Handles.....	25 1	525	9,530	18 15	525			
Hardwood Flooring.....	23 6	493	8,782	17 81	493			
Furniture.....	19 1	400	4,170	10 42	400			
Cooperage.....	14 5	304	7,600	25 03	304			
Boats.....	9 6	201	4,215	20 97	201			
Building Construction.....	6 4	134	2,016	15 04	134			
Vehicles.....	1 4	29	491	16 93	29			
Agr. Implements.....	0 2	5	100	20 00	5			

Beech (*Fagus grandifolia*) is the commonest hardwood tree in Nova Scotia and is also abundant throughout the Maritime Provinces, although it is not utilized to such an extent as birch and maple.

The quantity of this wood consumed (2,091,000 feet, board measure) forms one per cent of the total quantity of wood utilized in the region. All the beech used is native, and comes in greatest quantity from Nova Scotia.

The wood of this tree is hard, strong, tough and moderately stiff, but is often cross-grained, is very perishable and liable to shrink, warp and check even after seasoning. Trees growing under favourable conditions on good soil produce much better lumber than the average. This is often darker in colour and has given rise to the name of 'red beech,' although this is not a distinct species.

Beech is used in eight industries, going chiefly into the manufacture of brush-backs, handles, and hardwood flooring.



TABLE X - POPLAR.

Industry.	Per Cent.	Quantity	Value.	Average Value.	Source of Supply.			
					Maritime Provinces.	Other Canadian Provinces.	United States.	Foreign.
		M Ft. B. M.	\$	\$	M Ft. B. M.	M Ft. B. M.	M Ft. B. M.	M Ft. B. M.
Total	100.0	1,916	23,720	13.42	1,916			
Excelsior	47.0	900	10,100	11.22	900			
Cooperage	23.3	446	8,254	18.51	446			
Boxes	14.6	280	2,407	12.17	280			
Fruit Baskets	3.3	64	403	6.30	64			
Furniture	3.3	63	1,022	16.22	63			
Handles	2.6	50	865	17.30	50			
Building constr'n	2.5	47	843	17.94	47			
Wood pulp	1.6	30	225	7.50	30			
Vehicles	1.2	24	434	18.08	24			
Boats	0.3	6	90	15.00	6			
Coffins	0.3	5	62	12.40	5			
Miscellaneous	*	1	15	15.00	1			

\* Less than one-tenth of one per cent.

While often considered as a non-commercial tree, poplar forms a large percentage of the native forests, and is becoming more important as new uses are found for its wood. In the Maritime Provinces, poplar forms almost one per cent of the wood used, and makes up a total of almost two million feet, all of which is cut in the Maritime Provinces, mostly in Nova Scotia.

Aspen, or 'popple' (*Populus tremuloides*), balsam poplar (*Populus balsamifera*) and large-toothed aspen (*Populus grandidentata*) are the three species that are cut commercially.

In general the wood of the poplars is soft, light, weak and very perishable, but it has a fairly tough fibre; is colourless, tasteless and odourless and easy to work. Balsam poplar is considered the best material for lumber, while aspen is preferred for pulp and excelsior. Among the broad-leaved trees (usually classed as 'hardwoods' as opposed to the conifers or 'softwoods') poplar is the cheapest used in the Maritime Provinces.

Poplar is used in twelve industries and heads the list in two. The greatest quantity is used in the manufacture of excelsior, which is made entirely from this wood.

#### DOUGLAS FIR.

This tree is a native of the Pacific coast and comes third on the list of woods purchased outside the Maritime Provinces.

Of the total quantity purchased, 923,000 feet, board measure, were imported from British Columbia, and 20,000 feet, board measure, from the Western States.

Douglas fir (*Pseudotsuga mucronata*), sometimes improperly called 'Oregon pine,' is one of the most valuable structural timbers of the world, and competes with southern hard pine for this purpose. The wood is very variable in quality, and is, therefore, difficult to compare with similar timber. It is lighter than southern hard pine, and probably quite as strong, although this is a much debated point. The wood is strong, hard, tough, elastic, straight-grained and fairly durable. It is difficult work and

splits easily. While primarily a construction timber, on account of the dimensions in which it can be procured and its strength, this wood is adaptable to more ornamental purposes, such as interior trim, doors, panels, and flooring, and is becoming more popular for such purposes.

Douglas fir is used by four of the industries described in this bulletin. The manufacturers of cars take the greatest quantity of this wood, using over three-quarters of the total.

The wood is more expensive than hard pine, being purchased at an average price of \$41.81 per thousand feet.

#### TULIP.

Tulip, whitewood, and yellow poplar are names commonly applied to this tree (*Liriodendron Tulipifera*), whose wood is one of the most valuable of those imported into this country, coming fourth on the list of imported woods.

The tree is not a native of the Maritime Provinces, although it is found in southern Ontario. Of the total quantity of wood purchased, 85.4 per cent came from the United States, and the remaining 123,000 feet from Ontario, although most of this quantity was probably imported into Ontario from the United States, the total cut of this material in Ontario in 1912 being only about 150,000 feet.

The wood of the tulip tree is noted as being the best in America for holding its shape after being seasoned. Generally speaking, the wood is soft, light, tough and very durable. It has a fine grain and a fine, somewhat spongy texture, and is odourless and tasteless. The lumber seasons without checking or warping and splits easily and evenly, and is easy to work. Tulip wood can be readily steamed to any shape, and takes paint well, which makes it one of the best materials for panels.

Tulip is one of the most expensive hardwoods imported into these provinces in quantity, at \$48.44 per thousand feet board measure. The wood is used in six industries, and is purchased in greatest quantities by the manufacturers of cars and building material.

#### BASSWOOD.

Basswood<sup>1</sup> comes fifth on the list of woods purchased outside the Maritime Provinces, altogether 752,000 feet, board measure, of this material being consumed annually. The United States, Ontario and Quebec supply the greater part of this material (711,000 feet, board measure) and the remainder (41,000 feet, board measure) is native wood from New Brunswick. The tree is known by the botanical name of *Tilia americana*.

The wood is similar to tulip in many respects. It is harder, tougher, less spongy, has a much coarser grain and is much less durable. In its ability to hold its shape and in the ease in which it can be steamed, it is second only to tulip among the woods of America.

This wood is still fairly abundant in the United States, where the principal source of supply is located. The average price paid—\$35.89 per thousand feet—is below the average for imported woods.

Basswood is used in six industries, but not very extensively in any of these. Car manufacturers take about 30 per cent of the total and the manufacturers of building material, furniture, and coffins use the greater part of the remainder.

#### ASH.

Of the ash purchased by the wood-using industries, 71.4 per cent is home-grown, coming largely from New Brunswick. Altogether, only 189,000 feet, board measure, are imported and of this quantity 122,000 feet come from the United States.

<sup>1</sup> This wood is often called whitewood, but should not be confused with tulip, to which the name whitewood is more often applied.

Two species only are included in the native ash. These are white ash (*Fraxinus americana*), often known as 'ground ash,' which is cut in greatest quantities, and black ash (*Fraxinus nigra*), sometimes called 'brown ash,' which is seldom cut in commercial quantities.

The wood is noted especially for its toughness and elasticity. It is not especially hard or strong, but has a fairly fine texture. The grain, although coarse, is usually straight and even. The wood is not durable, but seasons well and takes a good polish.

Black ash is softer and weaker than white, but is usually more durable and has a more attractive figure under a natural finish. It is usually preferred to white ash for decorative work.

Ash is a wood that is noted for its wide range of uses; the material is purchased by ten of the industries at an average price of \$21.46 a thousand feet. The vehicle and car industries use over half of the total quantity of wood used.

#### CYPRESS.

Cypress (*Taxodium distichum*) is noted as the most durable of the woods of America, especially in moist situations. It grows on lands which are usually submerged during most of the year, and grows very slowly. Most of the commercial lumber is cut from trees at least two hundred years old, so, when the present supply is exhausted, it is doubtful if the wood will ever be reproduced commercially. The tree inhabits the Southern States and is not found north of southern Delaware.

The wood is soft and light, with a fine grain and texture. The grain is usually straight, but often wavy or curly. The wood has a greasy feel, but is not excessively resinous. The lumber is rather difficult to season, but holds its shape once it is seasoned, tools easily, and lasts indefinitely.

Cypress is used by only four industries. The greatest quantity of this wood goes into building construction for outside work, foundation timbers and interior trim.<sup>1</sup>

#### ELM.

Elm is probably the most generally popular hardwood in America, and its use in this region is limited only on account of its scarcity. The Maritime Provinces supply over two-thirds of their own consumption of this material. The imported elm comes from Ontario and the United States. The native supply is made up of white elm (*Ulmus americana*), while the imported wood is of this species and rock elm (*Ulmus racemosa*).

White elm is probably the toughest of the native hardwoods. The wood is heavy, hard when dry, strong and not very durable. It is difficult to split and hard to season. Rock elm is much harder, stronger, tougher and more durable than white elm.

Elm is the most important slack cooperage wood in Canada, although it comes seventh on the list in the Maritime Provinces for that industry. The wood is used by seven different industries, over half of the total quantity going into cooperage.

#### CEDAR.

Cedar is one of Canada's most durable woods in contact with moisture, and is cut in enormous quantities for shingles, railway ties, poles, fence-posts and rails. The imported cypress competes with this wood as lumber, as it can be obtained in

<sup>1</sup> By slightly charring the surface of this wood and then removing the burnt wood by scrubbing the surface, in the direction of the grain, by means of a steel brush, a unique and striking effect is obtained, called 'Suigi' cypress, in which the figure of the harder summer wood is raised above the general surface like the pattern on embossed leather.

greater quantities and larger dimensions. Northern white cedar (*Thuja occidentalis*) is the only species found in Eastern Canada. The British Columbia tree is known as western red cedar (*Thuja plicata*).

The native supply (60 per cent of the total) comes largely from New Brunswick, as this tree is very scarce in Nova Scotia. The imported supply comes from Quebec almost entirely. One thousand feet, board measure, were reported as purchased from the United States, and one thousand feet of western red cedar from British Columbia.

The wood of the cedars is light, soft, and weak, with a fine straight grain and fairly fine, even texture. The lumber seasons rapidly, tools easily and splits evenly and easily. Its most important quality is its durability in moist situations. The western red cedar is a much larger tree and its wood is more valuable commercially on account of the larger dimensions and greater quantity of clear lumber obtainable. Its wood, however, is very light, soft, brittle and spongy, and the grain coarse but straight. This is the most important shingle wood in Canada.

Native cedar is used more 'in the round' or in the form of shingles than as lumber. It goes into four of the industries described in this bulletin, being used by boat-builders in greatest quantities. Cedar at \$39.69 per thousand feet, board measure, is the most expensive softwood used in the Maritime Provinces.

#### CHESTNUT.

Chestnut is not a native tree in the Maritime Provinces, but is found in southern Ontario and Quebec. The supply of lumber, however, comes entirely from the United States and is the wood of only one species—sweet chestnut (*Castanea dentata*).

Chestnut trees are very liable to the attacks of an insect known as the chestnut borer (*Lymantria sericeum*), which leaves the wood penetrated by the galleries of its larvæ, but otherwise sound. This produces a grade of lumber known as 'sound wormy' chestnut, which is used extensively as core stock in veneered work. The wood is light and fairly soft, stiff and weak. It has a coarse grain and a coarse uneven texture, is easily tooled and extremely durable. The wood has an attractive grain, but as it is difficult to obtain sound material it is not so much used for ornamental work.

Chestnut is used in two industries only, the majority being taken by the car builders and the remainder going into building construction.

#### MAHOGANY.

Mahogany is a tropical wood coming to the Maritime Provinces through United States and West Indian ports. The wood on the market is made up of many different species of trees, but American mahogany (*Swietenia mahogany*) probably forms the greater part of the imports. Other genera represented in the trade are *Khaya*, *Cedrella*, and *Melia*. Next to lignum-vitæ, this is the most expensive wood used in quantity in the Maritime Provinces at an average price of \$151.11. The value of mahogany lies in its attractive colour and grain and its rarity, although the physical qualities of the wood are also superior. It is very heavy, hard, strong and close-grained, holds its place well and is very durable. The deep wine colour darkens with age, and the wood has a natural lustre.

Mahogany is imported in greatest quantities by the manufacturers of cars, and is also used in four other industries. It is used to a great extent in the form of veneer.

## TAMARACK.

Tamarack (*Larix laricina*) hackmatack or larch (often improperly called 'juniper') was at one time an abundant tree species in the Maritime Provinces. The early inroads into the supply by builders of wooden ships, followed by the attacks of the larch sawfly (*Nematus erichsonii*) have ended in rendering this tree almost extinct commercially. The supply is obtained in the Maritime Provinces and is purchased in greatest quantities in Nova Scotia.

The wood resembles that of the hard pines and Douglas fir. It is heavy, hard and strong, with a fine grain. It splits easily and is considered to be more durable than hard pine.

Boat-builders still use this wood in large quantities for ship knees and treenails and use over 91.7 per cent of the total. Three other industries use smaller quantities.

## CHERRY.

Black cherry (*Prunus serotina*) is not a native tree in this region, but is found in Ontario and Quebec, which supply a small part of the wood consumed by the industries in the Maritime Provinces. The greater part of the supply, however, comes from the United States.

Like mahogany, this wood is valued chiefly for its beautiful colour and appearance, although its physical qualities are also excellent. The wood is heavy, hard and strong, with a fine straight grain and fine texture. The lumber seasons easily and well, splits and works easily and keeps its place when seasoned. The surface shows a rich reddish-brown colour with occasional 'birds' eyes' and burls, and takes a high polish.

It is used extensively as veneer and is purchased chiefly by the manufacturers of cars in the Maritime Provinces; it enters also into four other industries.

## WILLOW.

Many species of willow are found native to the Maritime Provinces, but black willow (*Salix nigra*) is probably cut in greatest quantity.

This wood, the supply of which is entirely local, is used only by the manufacturers of slack coopeage for heading. It is weak, light and soft, but works easily and is quite tough, standing indentation without splitting, and holding its shape well.

## WALNUT.

Walnut (*Juglans nigra*) is the third most expensive wood used in the Maritime Provinces, and is purchased entirely from the United States.

The rich, dark, chocolate brown heartwood develops only at old age and, as the tree is slow-growing, the supply has been practically exhausted, and will not likely be reproduced.

This wood, once so popular for furniture and interior decoration, has given place to oak and mahogany. It is still purchased in greatest quantities by furniture manufacturers, and is used in three other industries to a small extent.

## HICKORY.

Hickory is America's best vehicle wood, and substitutes for it in this and the handle industry will be difficult to find. The wood used now is purchased from the United States and Ontario and is made up of different species of *Carya*. Shagbark hickory (*Carya ovata*) forms the bulk of the lumber on the market at the present

time. Large quantities of hickory spokes, bent rims, shafts and other vehicle stock are imported in the manufactured form from the United States and Ontario, but are not included in this bulletin, which deals only with raw material.

Hickory wood excels all other American woods in its combination of strength, toughness, hardness and elasticity. This wood was imported in the rough only by vehicle manufacturers.

## LIGNUM-VITÆ.

Lignum-vitæ (*Guaiacum officinale*) is probably the hardest, heaviest and most durable wood known to commerce. It grows in tropical America, and is imported into the Maritime Provinces through the United States and West Indian ports in the form of small logs. It is purchased by weight at an average price of \$60 a ton. The high price of \$235.71 per thousand feet, board measure, may seem excessive, but this was obtained by assuming that a ton contained approximately 250 board feet.

The wood is used chiefly in the manufacture of blocks, sheaves and pulleys, a smaller quantity going into the manufacture of bowling balls. It is the most expensive wood used in quantity by the industries of the Maritime Provinces.

## REDWOOD.

The California redwood (*Sequoia sempervirens*) is one of the largest trees in the world, and is a native of the Pacific coast in the United States.

The wood is as light as white pine and has a fairly fine straight grain. It is exceedingly durable, almost impervious to water, and difficult to burn. It is only used in boat building in the Maritime Provinces.

## BUTTERNUT.

Butternut (*Juglans cinerea*) belongs to the same genus as walnut, and is sometimes called 'white walnut.' The wood resembles that of the more valuable species in grain and texture, but is lighter in weight and colour, and is both soft and weak.

A few of these trees are found in New Brunswick, which province contributes the entire supply for the region. The wood is used in interior house finish only.

## GUM.

Red gum or satin walnut (*Liquidambar styraciflua*) is not a native tree in Canada, but its lumber is rapidly becoming commercially important. At one time considered useless on account of difficulties in seasoning, this wood is now used extensively in 'inside work' on furniture and fixtures, and is often stained to imitate more expensive woods, such as Circassian walnut, which it closely resembles in grain and figure. After careful steam-drying from the saw, this wood does not warp or twist. It takes a good polish and can be obtained in greater clear widths than most native woods. It is used only by furniture manufacturers in the Maritime Provinces.

## MINOR SPECIES.

The following woods, mostly imported, are used in quantities of less than one thousand feet, board measure, and are not included in the tables:—

ALDER (*Alnus sp.*), a native shrub, is used for half-round barrel hoops. The wood is fairly strong and tough and is cheap and abundant.

GREENHART (*Nectandra Rodnei*) is an extremely hard, strong, elastic wood used in the Maritime Provinces for the manufacture of fishing rods. It is an imported wood, growing generally in tropical South America.

LANCEWOOD (*Duguetia quitarensis*), of similar characteristics to greenheart, is also used for fishing rods, and comes from the West Indies.

BLACK LACUST (*Robinia pseudacacia*) is native to southern Ontario, and is planted for ornamental purposes in the Maritime Provinces. This is a valuable wood commercially in the United States, being very hard, strong, heavy and tough. Its superior qualities have given it special uses. The wood is used in small quantities locally in the Maritime Provinces whenever the removal of an ornamental tree provides a small supply. It is used chiefly for vehicle axles, insulator pins and treenails.

TEAK (*Tectona grandis*) is one of the most valuable shipbuilding woods in the world, but its cost prohibits its use except for the most expensive work. The small quantity reported in the Maritime Provinces was used for interior finish.

## WOOD-USING INDUSTRIES.

The data from which this bulletin has been compiled were received from over six hundred firms using wood as a raw material and further working it up into finished commodities, or using it as a means of manufacture or as a packing material for manufactured articles. Industries which purchase partly manufactured stock and merely assemble this in their factories are not included.

Each separate report has been treated as confidential. Wherever less than three firms made one class of commodity, the details of the industry were included under one heading, 'miscellaneous,' to avoid disclosing the identity of the individual firms. Many different industries which manufacture similar products and use similar woods have been combined as one industry. The details of the classification are explained under the separate industries.

TABLE 'D' SUMMARY OF WOOD USED IN THE MARITIME PROVINCES BY INDUSTRIES

Industry.	Per Cent.	Quantity used Annually.	Total Value.	Average Value.	Source of Supply			
					Maritime Provinces.	Other Canadian Provinces	United States.	Foreign.
		MFL B.M	\$	cts.	MFL B.M	MFL B.M	MFL B.M	MFL B.M
Total	100.0	294,463	3,684,142	18.02	179,361	2,017	22,920	225
Building Construction	30.3	61,991	1,179,821	19.03	60,123	370	1,487	11
Wood-pulp	21.2	43,331	400,260	9.24	43,331			
Car Construction.	18.2	37,275	1,005,821	26.98	15,422	933	20,724	196
Cooperage	10.4	21,253	397,554	18.71	21,253			
Boxes and Crating	4.4	17,174	211,270	12.30	17,098	60	16	
Hardwood Flooring.	2.7	5,488	96,891	17.66	5,476		12	
Boats	2.2	4,530	130,508	28.81	4,198	160	159	4
Furniture.	2.2	4,416	86,561	19.60	3,876	133	403	4
Handles	0.9	1,886	31,704	16.81	1,886			
Miscellaneous	0.8	1,735	23,224	13.39	1,699		36	
Vehicles.	0.6	1,250	28,455	22.80	1,202	12	45	
Coffins and Caskets	0.6	1,178	24,808	21.16	1,624	152		
Patterns	0.4	916	33,031	36.06	733	170	10	3
Excelsior	0.4	900	10,100	11.22	900			
Foundry Boxes	0.2	381	7,196	18.89	381			
Machinery Part	0.2	325	7,925	24.38	286	11	28	
Agricultural Impts	0.1	256	4,826	18.85	256			
Fruit Boxes	"	85	631	7.42	85			
Pulleys and Blocks.	"	45	1,798	39.96	40			5
Sporting Goods	"	41	1,672	40.78	32			2

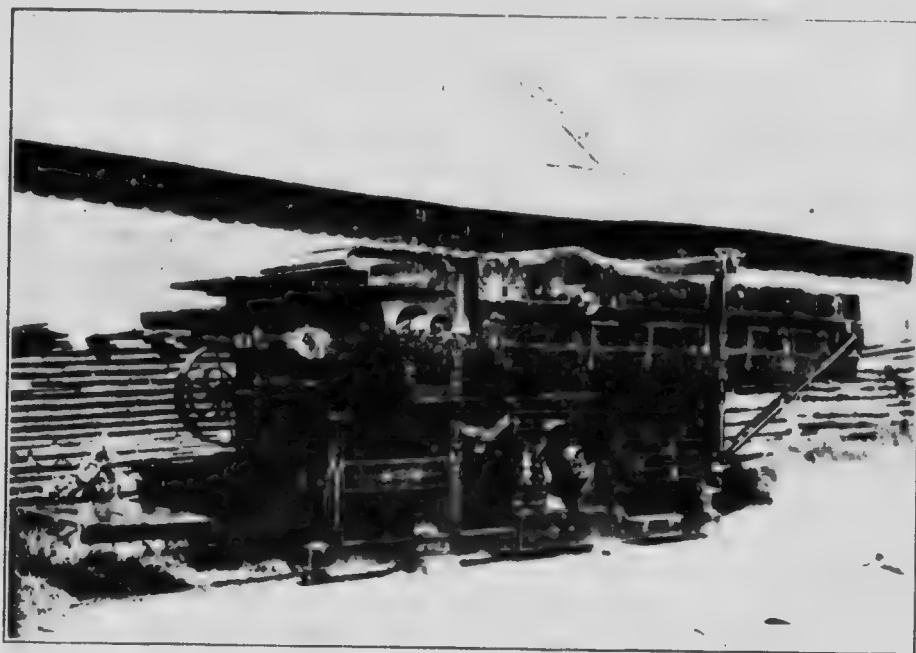
\* Less than one-tenth of one per cent.



## DETAILED DESCRIPTIONS OF INDUSTRIES.

TABLE I. AGRICULTURAL IMPLEMENTS.

Kind of Wood	Per cent.	Quantity.	Value.	Average value.	Source of Supply			
					Maritime Provinces.	Other Canadian Provinces	United States	Foreign.
		M Ft. B. M.	\$	¢	M Ft. B. M.	M Ft. B. M.	M Ft. B. M.	M Ft. B. M.
Total	100.0	256	4,826	18.85	256			
Birch	36.3	93	1,569	16.87	93			
Maple	25.4	65	1,525	23.46	65			
Spruce	20.3	50	847	16.94	50			
Pine	16.0	41	750	18.29	41			
Beech	2.0	5	100	20.00	5			
Oak	0.1	1	25	25.00	1			
Hemlock	0.1	1	10	10.00	1			



(Photo R. G. Lewis.)  
 Thresher Manufactured by the Hall Manufacturing Co., Summerside, P.E.I.

The commodities manufactured by this industry include implements for cultivating the soil, such as ploughs, seeders, cultivators, horse-hoes and harrows, and implements and machines for harvesting and marketing farm products, such as threshers, hay presses, and root pulpers. Wood-cutters and wheel-barrows are also included in this class.

While this does not rank among the top ten, it is, nevertheless, seventeenth on the list, it is a good example of one in which native woods are used to advantage. A large part of the work done is repair-work, as the greater part of the agricultural implements used in these provinces are imported from the United States and from Ontario. Seven kinds of wood are used by this industry, birch forming over a third of the total. No imported hard pine was used, although this material heads the list for this industry in Ontario. Woods are required that are strong, tough and hard as the implements manufactured are designed for rough usage. Birch is used for framework and for heavy box and side work. Maple is used almost entirely for light framework, and is valued in this respect for its elasticity.

Pine is used for light box work, heads for barrels, and for poles, posts, and hemlock for rough box work. The wood is purchased in the form of poles, posts, and boards of medium grades, and comes entirely from the Maritime Provinces.

This industry paid an average price of \$18.85 per thousand for its raw material and purchased the cheapest oak used by any industry at \$25 per thousand.

The products of the industry are sold almost entirely in the Maritime Provinces.

TABLE 2. BOATS AND SHIPBUILDING.

Kind of wood.	Per Cent.	Quantity.	Value.	Average Value.	Source of Supply.				
					Maritime Provinces.	Other Canadian Provinces.	United States.	Foreign.	Other.
Total	100.0	4,540	130,708	28.81	4,198	169	181	1	1
Pine	28.3	1,280	25,619	19.97	1,083				
Spruce	2.8	1,080	21,080	20.45	1,080				
Birch	13.0	588	12,067	20.52					
Oak	9.9	450	19,125	42.50					
Maple	7.2	320	6,880	21.50					
Cedar	1.9	84	21,115	100.00					
Beech	1.4	60	4,217	20.07					
Yamacack	3.7	166	3,345	20.15					
Hard Pine	2.6	118	5,361	45.43					
Douglas Fir	1.1	48	4,592	71.84					
Black Locust	0.7	32	567	17.72					
Alder	0.6	26	1,007	19.08					
Hickory	0.5	22	971	15.00					
Cypress	0.3	12	808	67.33					
Palm	0.2	10	374	37.40					
Pine	0.1	5	90	18.00					
Locust	0.1	5	375	75.00					
Maple	0.1	5	808	22.00					
Cherry	0.1	5	87	87.00					

\* Less than one-tenth of one per cent.

The manufacture of large wooden sailing vessels was at one time an important industry in the Maritime Provinces. The introduction of steel and iron boats, and the scarcity of native timber suitable for this purpose, have reduced this industry to seventh place on the list. The industry is now chiefly confined to the manufacture of small boats. Boats, skiffs and small sailing craft form a large proportion of the products manufactured, although some large vessels are still built. A large proportion of the wood goes into repair work on wooden vessels, wooden parts

of steel and iron vessels, and all sorts of pleasure craft, such as canoes, row-boats, yachts and motor-boats.

Nineteen kinds of wood are used in this industry, pine leading with 28.3 per cent of the total. This wood is used chiefly for hull and deck planking in all sorts of vessels from dories upward. It is also used for interior finish on both wooden and steel boats.

Pine is valued on account of its lightness, comparative durability, ease of working and the fact that it holds its place with a minimum of expansion and contraction. Spruce is used to almost as great an extent as pine and is a more abundant wood in the Maritime Provinces. It is used with pine for planking and finish, but goes chiefly into frame-work and inside planking, decking, flooring and ceiling. Considerable quantities of spruce are used also for dory thwarts, canoe gunwales, oars, paddles and spars. Birch is used almost entirely for framework, such as ribs, keels, sterns, gunwales and shaft logs, and also for planking, inside finish and rudders. Oak is used entirely for framework and interior decorative finish. Maple is used for bent work and framing generally and also for planking and the manufacture of oars and paddles. Cedar is used chiefly for the manufacture of canoes and small boats and is the most expensive native wood purchased by this industry. Tamarack, at one time the favourite wood for all classes of shipbuilding, has become so scarce that its use is confined to treenails and deck plugs, with smaller quantities in the form of roots, which are worked into knees and stems.

Beech goes into framework, outside planking and treenails. Imported hard pine makes heavy framework and decking and Douglas fir is used almost exclusively for spars. The framework of small boats and dories is sometimes made of balsam fir, which wood is also used for light planking and spoon oars. Dory oars are made of ash, which goes also into canoe stems and cabin finish. Hemlock for rough framing, elm for bent timbers, and poplar for small boat ribbons completes the list of woods used for framework.

Cypress and California redwood are used for planking launches and small boats. Mahogany and cherry are used entirely for interior finish and decorative work.

The material is purchased in the form of rough and surfaced lumber, dimension stock, live sawn plank, hewn timber, roots and logs, and is for the most part of the best grades obtainable. Over ninety per cent of the wood used is native material.

Oak, hard pine, Douglas fir, cypress, redwood and cherry are imported from the United States. Some oak was purchased in Ontario and cedar and ash were purchased in Quebec. British Columbia supplied the greater part of the Douglas fir used.

The boat and shipbuilding industry used greater quantities of cedar and tamarack than all the other industries combined. They purchased the most expensive cedar, Douglas fir, hard pine and mahogany, and the cheapest cherry.

The large vessels built are used in the coasting trade, and are usually owned and operated by Canadians. The smaller fishing vessels are used chiefly in coast and bank fishing, as are the dories. Pleasure boats are sold in the Maritime Provinces, but New Brunswick canoes are sold all over Canada and the United States, and are shipped to Europe, Asia, Africa, South America and Australasia.

TABLE 3. BOXES AND CRATING

Kind of Wood.	Per Cent.	Quantity	Value.	Average Value.	Source of Supply.			
					Maritime Provinces.	Other Canadian Provinces.	United States.	Foreign.
		M Fc. B. M.	\$	\$ cts.	M Fc. B. M.	M Fc. B. M.	M Fc. B. M.	M Fc. B. M.
Birch.....	100.0	17,174	211,270	12.30	17,098	60	16	
Sp. Spruce.....	66.4	11,397	142,894	12.54	11,372	25		
B. Spruce Fir.....	14.3	2,454	26,680	10.87	2,454			
Pine.....	11.5	1,982	26,981	13.61	1,982			
Greenlock.....	5.4	922	8,174	8.87	922			
Poplar.....	1.6	280	3,407	12.17	280			
Birch.....	0.3	46	610	13.26	46			
Elm.....	0.2	35	1,225	35.00		35		
Maple.....	0.1	25	625	25.00	25			
Tulip.....	0.1	15	450	30.00				15
Cedar.....	0.1	11	160	14.55	10			1
Tamarack.....	*	5	40	8.00	5			
Basswood.....	*	2	24	12.00	2			

\* Less than one-tenth of one per cent

This class of industry includes the use of wood in the manufacture of boxes and box shooks for packing commodities of all kinds. It also includes wood used in the rough crating of commodities such as furniture, light machinery, etc., which are not shipped in boxes; and skids for heavy machinery. Smaller quantities of wood used for cordage reels, cloth boards, casks, pit boxes, trunk boxes and slats are also included. This industry comes fifth on the list and consumes over seventeen million (17,171,000) feet board measure of lumber, or 8.4 per cent of the total quantity used.



FIG. 1. R. G. LEWIS.

ONE OF THE STENTS OF THE LUMBER BOARDING WORKS, BOX CO., LTD., PORTLAND, ST. JAMES, N.B.

Twelve kinds of woods were reported, spruce heading the list with two-thirds of the total. Spruce, pine and balsam fir together made up over 90 per cent of the wood purchased. The woods used by this industry are selected chiefly on account of cheapness and abundance, although strength is often an important consideration. Tasteless and odourless woods like spruce, balsam fir, hemlock and poplar are especially valuable as food-containers, and are largely used for fish and fruit boxes. Tulip, maple and birch are used for tobacco boxes on account of their lack of odour. Spruce, poplar and basswood are especially valuable for crating, on account of their

boxes and  
ed in the  
are not  
ood used  
included.  
(171,000)

toughness. Elm is used for trunk slats because of its strength and toughness, and cedar for trunk boxes on account of its lightness and durability.

Box shooks are generally produced in sawmills from short boards and material that would otherwise be classed as waste. For the better class of product the shooks are finished in a box machine, which planes, matches, glues and dovetails the shooks and cuts them to size, so that only assembling is necessary to produce the finished product. In many cases these 'knocked-down' boxes are shipped to the users in bundles, each bundle containing material for a number of complete boxes, which are assembled, nailed together and sandpapered, all by machinery. Many factories produce only box lumber cut to size, others produce 'knocked-down' boxes or shooks and other more complete factories produce finished boxes, sawing their own lumber from the log. Factories which merely assemble boxes which have been partly manufactured by another firm are not included in this bulletin.

The raw material used for boxes and crating is purchased almost wholly in the Maritime Provinces. Spruce from Quebec, elm from Ontario, tulip and a small quantity of cedar from the United States make up the total of imported material, which amounts to less than one per cent of the total quantity purchased.

With the exception of pulp manufacture, no other industry used more balsam fir than the box manufacturers, who took 23.9 per cent of the total. In the use of lumber this industry comes second only to building construction.

Large quantities of box shooks are exported annually from the Maritime Provinces to the Bermudas, the Bahamas and the West Indies. Otherwise the field of trade is largely local.

TABLE 4. BUILDING CONSTRUCTION.

Kind of Wood.	Per Cent.	Quantity	Value	Average Value	Source of Supply			
					Maritime Provinces	Other Canadian Provinces	United States	Foreign
		M Ft. B. M.	\$	cts.	M Ft. B. M.	M Ft. B. M.	M Ft. B. M.	M Ft. B. M.
Pine	100.0	61,991	1,179,821	17.61	60,123	370	1,487	11
Spruce	60.2	37,379	574,535	15.37	37,379			
Pine	23.4	14,543	381,516	26.23	14,463	40	40	
Hemlock	7.2	4,493	66,432	13.43	4,493			
Birch	2.8	1,751	36,104	20.62	1,796	20	25	
Balsam Fir	2.4	1,390	19,877	14.30	1,390			
Tulip	0.9	564	21,971	36.96			564	
Cypress	0.7	421	26,183	62.19			421	
Oak	0.6	390	25,925	72.01	120	19	223	
Maple	0.4	236	4,274	18.11	236			
Basswood	0.3	171	5,039	32.98	15	139	17	
Fulcrum	0.3	167	6,485	38.83				167
Douglas Fir	0.2	146	6,783	48.45		146		
Beech	0.2	134	2,016	15.04	134			
Ash	0.1	82	1,844	22.49	74	3	5	
Cedar	0.1	50	1,050	21.00	50			
Poplar	0.1	47	843	17.94	47			
Chestnut	*	21	1,218	58.00			21	
Elm	*	21	996	47.43	11	9	1	
Mahogany	*	11	1,400	127.27				11
Tamarack	*	9	160	17.78	9			
Butternut	*	5	70	14.00				
Walnut	*	3	380	126.67			3	
Cherry	*	2	200	100.00			2	

\* Less than one-tenth of one per cent.



Sash and Dow Factory, Machines in Operation

In almost every study made of wood-using industries, building construction heads the list for quantity of material used. While brick, stone, steel and concrete are supplanting wood as a structural material to an enormous extent, still the use of wood tends to increase for this purpose, especially in rough temporary structures. Even the most modern fire-proof buildings of steel, concrete and tile have wooden floors, wooden doors encased in metal, and interior finish of wood.

The industry, as described in this bulletin, includes the manufacture of all kinds of finished building material, such as sash, doors, sheeting, siding, sills, studding, joists, rafters, flooring, stair material, moulding, wainscoting, cornice and verandah material. It does not include shingles or lath, as their manufacture is usually a part of the saw-mill industry. The manufacture of hardwood flooring is described as a separate industry, and office and store fixtures are described with furniture.

Twenty-eight different kinds of wood are used, in quantity, by the wood-using industries of the Maritime Provinces, and, of these, twenty-three are used in building construction—a greater number than is used by any other industry.

Spruce forms over sixty per cent of the total, with a consumption of 37,370,000 feet, board measure, and is used for practically every kind of building material—interior finish, exterior finish and framing.

Pine possesses the qualities which fit it for building purposes to a greater extent than spruce, but pine, being less abundant and more expensive, forms only 20.4 per cent of the total.

Hemlock is used for framework, rough flooring and boarding in greatest quantities. The better class of so-called 'white hemlock' is sometimes used for interior finish. Hemlock is the cheapest wood purchased by this industry.

Birch goes largely into stair material, wainscoting and interior decorative work generally, where it is usually given a natural finish.

Balsam fir is used by this industry to a great extent. The tree is among those considered as 'inferior species' in other provinces, which usually means that uses for its wood have not been found. Balsam fir is used for all classes of building material, except framework. Hard pine is becoming more popular for building purposes, as it has both the strength for framework and the surface and appearance for interior finish and flooring.

Cypress is used for some interior finish in doors and sash, but is valued chiefly for gutters, spouting and verandah work on account of its durability. Oak is used entirely for interior work in doors, stair-work, panels, wainscoting and wherever an attractive grain or strength is desired. Maple is also used for stair-work and interior decoration. Basswood and tulip are valued chiefly for door and wall panels. Douglas fir is used for doors, mouldings and finish, although it is valued in other industries more for its strength than its attractive figure in decorative work. Beech, ash, elm, butternut, mahogany (the most expensive wood purchased by the industry), cherry and walnut are all used for stair-work, wainscoting, panelling and decorative purposes generally. Poplar is another wood little used for building in other parts of Canada. It is well suited for plain inside work, panels, mouldings and interior finish, when covered with paint. Chestnut is used for core-stock and moulding, tamarack for outside work, such as verandah posts and flooring, and cedar for mud-sills and framing exposed to moisture.

Many of the larger firms saw their material in the log and have a planing-mill and builders' factory in connection with their saw-mill. Others buy lumber and work it into shape for building material. These manufacturers use chiefly native material. Hard pine, cypress, basswood, tulip and Douglas fir form the bulk of the imports, together with smaller quantities of the more expensive decorative hardwoods such as oak, chestnut, mahogany, walnut and cherry. Altogether, only a trifle over 3 per cent of the wood used is purchased outside the provinces.

This industry uses more pine, hemlock and cypress than all the other industries combined, and takes all the butternut used. Manufacturers of pulp alone use more



—spruce than this industry. On the list of six other woods—Douglas fir, cedar, chestnut, mahogany, tamarack and walnut—this industry also comes second.

The prices paid by builders' factories for chestnut and elm are the highest paid by any industry. The trade in the products of this industry is confined to the Maritime Provinces almost entirely.

TABLE 5. CAR CONSTRUCTION.

Kind of Wood.	Per Cent.	Quantity.	Value.	Average Value.	Source of Supply							
					Maritime Provinces.		Other Canadian Provinces		United States		Foreign	
					M Ft B M	8	8 cts. M Ft B M	M Ft B M	M Ft B M	M Ft B M	M Ft B M	M Ft B M
Total	100.0	37,275	1,000,821	26.98			15,422		933	20,724		196
Hard Pine	46.3	17,256	533,133	30.90						17,256		
Spruce	26.2	9,758	171,577	17.58			9,758					
Pine	10.1	3,754	68,246	18.18			3,754					
Oak	6.5	2,427	84,307	34.74								2,375
Birch	4.7	1,766	31,790	17.98			1,766					
Douglas Fir	2.0	730	27,740	38.00						730		
Tulip	1.6	585	28,575	48.85						120		465
Basswood	0.6	225	10,125	45.00								225
Chestnut	0.5	200	4,000	20.00								200
Mahogany	0.5	196	29,400	150.00								196
Ash	0.4	150	900	60.00						50		100
Cherry	0.3	108	10,800	100.00						8		100
Maple	0.2	80	4,000	50.00								
Elm	0.1	25	700	28.00								
Hemlock	*	12	168	14.00						12		25
Walnut	*	3	300	100.00								3

Less than one-tenth of one per cent.

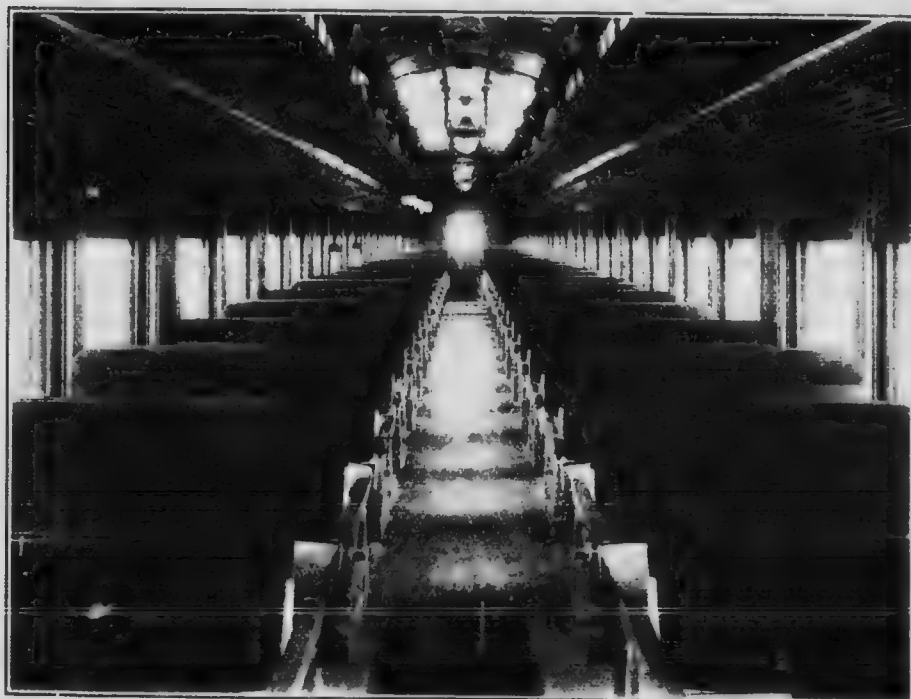
The wood purchased by this industry, the third most important in the Maritime Provinces, is used in the manufacture and repairing of passenger, freight, baggage express, and mail cars, and locomotives and snow-ploughs for steam railways.

Sixteen kinds of wood are used with a large percentage of hardwoods. Hard pine heads the list with over seventeen million (17,256,000) feet, board measure, or 46.3 per cent of the total. This industry used practically all (96.1 per cent) of the hard pine imported into the Maritime Provinces. The wood is especially valuable for this purpose on account of its strength and stiffness and the fact that it can be purchased in clear dimensions of sufficient size for the long sills in car framework. The wood is used for framing in cars and snow-ploughs and for lining steel cars.

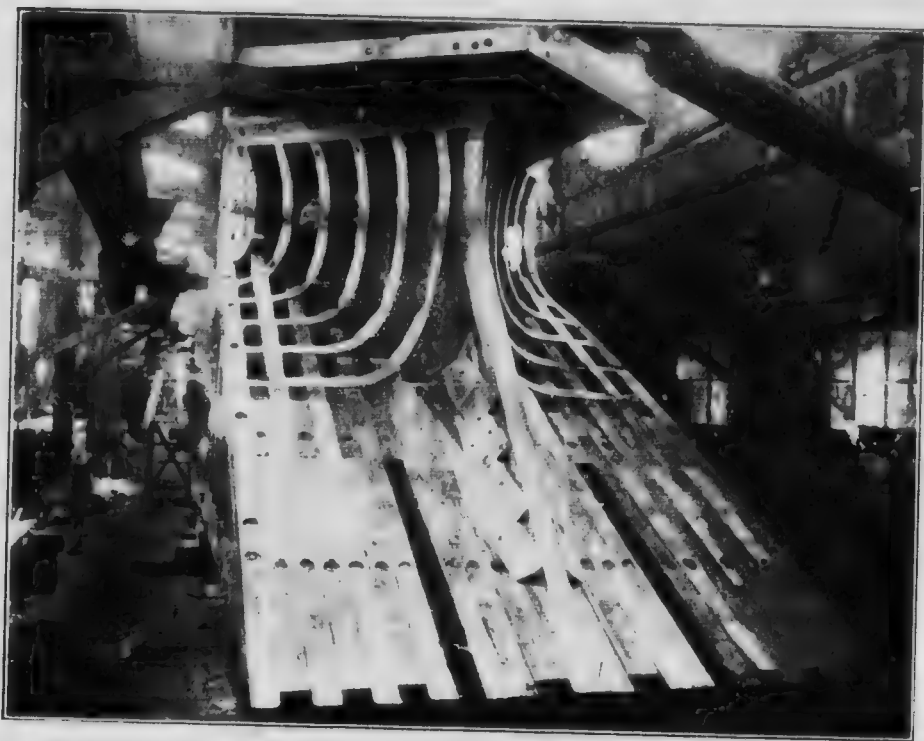
Spruce forms over a quarter of the total, and is used in freight cars as flooring, siding and lining, and also for the wooden parts of locomotives. Oak is used in the framework for cross-sills, deadheads and bumpers and for interior finish where quarter-cut white oak in the form of veneer is used. Birch is used in freight-car frames and some interior finish. Douglas fir goes chiefly into roofing and siding, as it is usually more expensive than hard pine for framing. Tulip holds its shape and takes paint well, and is used for outside sheathing, name-boards, step-sides, and finish in passenger cars. Ash goes into frame-work and finish, chestnut is used for core stock; and mahogany, cherry, and walnut are all used for interior decoration and seats in first-class coaches. Refrigerator cars are lined with basswood, second-class coach seats are made of elm, and passenger cars are floored with maple. Some hemlock is used for freight cars.



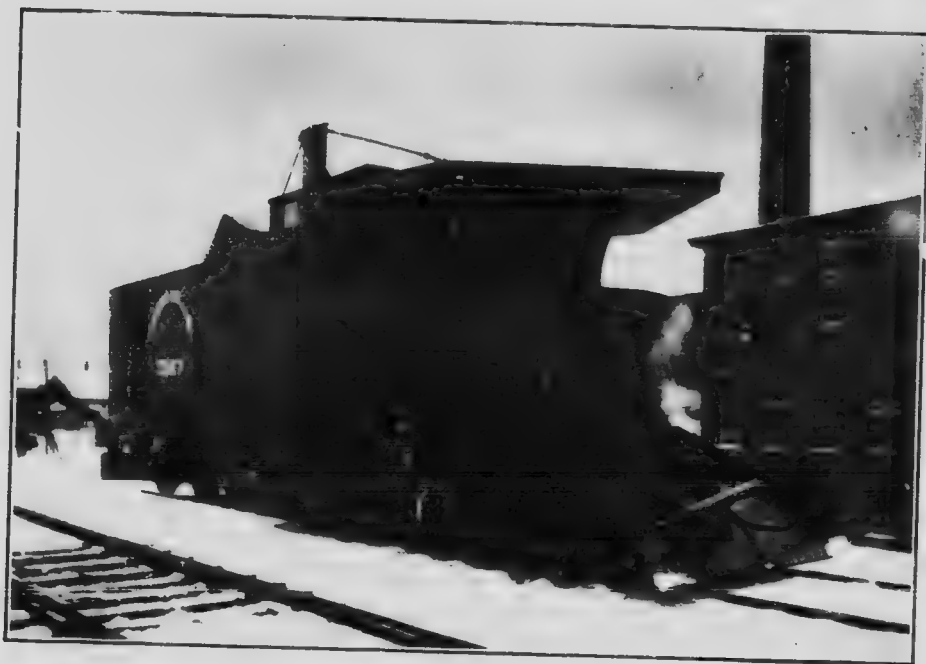
INTERESTY CANADIAN CAR & FOUNDRY CO.  
Interior of Unfinished Passenger Coach: Carbody of R. 10 and 15, Floor of Maple, Side Walls of Hard Pine, Truss Planks of Hard Pine, Sash of Mahogany.



INTERESTY CANADIAN CAR & FOUNDRY CO.  
Interior of Finished Passenger Coach: Seat Arms and Finish of Mahogany.  
Built by Canadian Car & Foundry Co., Ltd., Amherst, N.S.



(COURTESY CANADIAN CAR & FOUNDRY CO.)  
Snowplough Framework : Stem and Sills of Oak ; rest of Hard Pine



(COURTESY CANADIAN CAR & FOUNDRY CO.)  
Finished Snowplough : Sheeting of Hard Pine.  
Canadian Car & Foundry Co., Ltd., Amherst, N.S.

The material is purchased in all dimensions, from veneer to twelve-inch timbers, but is all of the best grades. This industry pays a high average price for its lumber, being exceeded by only four other industries in this respect. Over half the lumber (58.6 per cent) is imported, coming chiefly from the United States, where all the hard pine, basswood, chestnut and walnut is purchased, together with most of the oak, tulip, ash and cherry. The Douglas fir comes from British Columbia, and Ontario supplies all the elm and part of the ash, tulip, and cherry. Mahogany is purchased through the United States from tropical America.

Car manufacturers purchase more hard pine, oak, Douglas fir, tulip, basswood, chestnut, mahogany and cherry than any other industry. In their purchases of pine they are exceeded only by manufacturers of building material.

The highest average prices reported for basswood, ash and maple were paid by car manufacturers for these woods. They also purchased the cheapest hard pine, Douglas fir and chestnut. The cars manufactured are used or sold for use on Canadian railway systems.

TABLE 6. COFFINS, CASKETS AND SHELLS

Kind of Wood.	Per Cent.	Quantity.	Value.	Average value.	Source of Supply			
					Maritime Provinces.	Other Canadian Provinces.	United States	Foreign.
		M Ft.B.M.	\$	cts.	M Ft.B.M.	M Ft.B.M.	M Ft.B.M.	M Ft.B.M.
Total	100.0	1,176	24,885	21 16	1,024	152		
Pine	57.8	680	14,379	21 15	680			
Spruce	21.3	250	3,619	14 60	250			
Basswood	12.7	150	5,400	36 00			150	
Hemlock	4.5	53	744	14 04	53			
Balsam Fir	3.0	35	521	14 89	35			
Poplar	0.4	5	62	12 40	5			
Oak	0.2	2	100	50 00			2	
Ash	0.1	1	30	30 00	1			

This industry, coming twelfth on the list, is engaged in the manufacture of coffins, caskets, and rough boxes or shells. No large firms are engaged in the industry, which has merely a local field of trade. Most of the expensive, highly decorated caskets used are imported, and the industry in the Maritime Provinces is largely confined to the manufacture of cloth-covered coffins, rough boxes and shipping cases.

The woods used are mostly softwoods, with pine, spruce, hemlock and balsam fir forming together 86.6 per cent of the total. For coffins and caskets, woods are used that hold their shape well, are fairly durable and take paint or stain well. Rough boxes are made of the cheapest and most abundant lumber obtainable.

The wood is purchased in the form of rough boards and, with the exception of basswood and oak, is all native material. Oak is the most expensive wood used and hemlock the cheapest. The average price of \$21.16 is a little above the general average.

TABLE 7. COOPERAGE

Kind of Wood.	Per cent.	Quantity	Value.	Average Value.	Source of Supply			
					Maritime Provinces	Other Canadian Provinces	United States	Foreign
		M F L B M	*	S	cts.	M F L B M	M F L B M	M F L B M
Total	100.0	21,253	397,554	18.71		21,253		
Spruce	78.3	16,644	299,022	17.97		16,644		
Balsam Fir	3.4	1,735	32,865	18.94		1,735		
Birch	5.2	1,101	27,470	24.95		1,101		
Pine	2.6	549	12,094	22.03		549		
Poplar	2.1	446	8,254	18.51		446		
Beech	1.4	304	7,092	23.33		304		
Elm	0.9	188	5,063	26.93		188		
Ash	0.6	118	2,791	23.65		118		
Maple	0.3	56	1,323	23.62		56		
Willow	0.1	27	600	22.22		27		
Hemlock	0.1	25	452	18.08		25		

The manufacture of barrel stock is the fourth most important industry in the Maritime Provinces. Reports received from cooperages in 1912 gave the following figures for the Maritime Provinces: Slack staves, 39,939,000; slack heading, 2,746,662 sets; slack hoops, 6,227,900; tight staves, sawn, 1,389,083; tight staves, bucked and split, 12,000; tight heading, sawn, 177,113 sets. The figures in the above table have been adapted from these reports and from separate reports giving the production in board feet.

Eleven woods are reported as being used in this industry and all these but willow were used in making slack staves, although spruce, balsam fir, birch, pine and poplar in the order named were used in greatest quantity. Every one of the eleven woods was used for slack heading, with spruce, balsam fir, pine, ash, poplar and elm leading in the order named. Almost ninety per cent of the hoops are made of spruce and birch in about equal quantities. Elm, poplar, maple, ash, and willow are also used, and small quantities of alder were reported. Many of these woods are used for 'half-round' hoops, and the consumption of wood for this purpose is difficult to estimate in board feet. Spruce, birch, balsam fir, white pine, oak and beech are used for sawn tight staves; balsam fir, spruce and oak for 'bucked and split' tight staves; and spruce, white pine, balsam fir, birch, and oak for sawn tight heading.

Wood for staves should be as tough and stiff as possible, although for slack cooperage great strength is not required so much as in the case of tight cooperage, where the slightest failure of a stave would mean the loss of the contents of the barrel. Heading woods do not require toughness but only stiffness and the quality of holding their shape. Wood for hoops must be tough. Apart from these qualities cooperage woods are chosen chiefly on account of cheapness and abundance, although clear stock is imperative for tight cooperage and very desirable for slack staves. Slack heading is often made of knotty material.

The material for this industry is all purchased in the form of logs, and sawn into cooperage stock. Firms who purchase manufactured stock and merely assemble barrels are not included. The average price paid for raw material was \$18.71, which is only 69 cents above the general average for all industries. The wood was all purchased in the Maritime Provinces.

The cooperages purchased more elm than all the other industries combined. They paid the highest prices reported for balsam fir, birch, poplar, beech and hemlock.



Fig. 1. Sugar cane stalks.

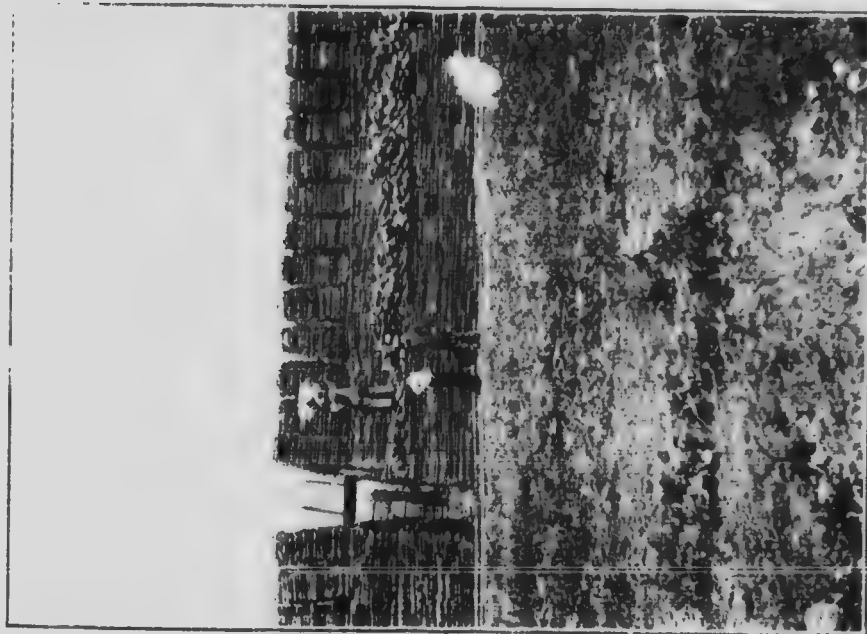


Fig. 2. Sugar cane stalks.

Barrel stock is sold largely in the Maritime Provinces and in other parts of Canada. The greatest number of barrels are probably used for containing fish, apples and potatoes, which are shipped out of the provinces in large quantities.

TABLE 8. EXCELSIOR.

Kind of Wood.	Per Cent	Quantity	Value.	Average Value	Source of Supply			
					Maritime Provinces.	Other Canadian Provinces	United States.	Foreign.
		M Fc. B. M	\$	# cts.	M Fc. B. M	M Fc. B. M	M Fc. B. M	M Fc. B. M
Total	100.0	900	10,100	11.22	900			
Poplar	100.0	900	10,100	11.22	900			



(PHOTO R. G. LEWIS.)

Excelsior Machine: Hopper Bros., Truro, N.S.

While this industry consumes only 900,000 feet, board measure, of raw material and comes fourteenth on the list, it is important on account of the fact that it consumes only one kind of wood.

Poplar is one of the most widely distributed trees on the North American continent, and is always fairly abundant. The wood of the different species of this tree varies greatly in quality. The cottonwoods are considered to be very valuable for lumber, but the aspens and balsam poplar (the species found in the Maritime Provinces) have usually been considered as 'tree weeds,' or inferior species. Usually their wood is only used as a last resource, but the manufacture of excelsior is a demonstration of its economical use for a purpose wherein it surpasses all other woods. Its softness, its straight grain, and the toughness of its fibres give it special value for this purpose, and its cheapness and abundance also add to its popularity. When one considers the enormous quantities of standing timber of the poplar species in Canada which are considered as worse than useless, he realizes the value of any industry than can utilize this material.

The wood manufactured into excelsior in the Maritime Provinces is all native. It is purchased in the log and often in four-foot lengths, peeled and split, at the low average price of \$11.22 per thousand feet. The reports received from the manufacturers usually gave results in cords, which totalled up to 1,624 cords at an average value of \$6.22 a cord. The figures in the above table were adapted from these by assuming one cord to contain approximately 554 feet, board measure.

The field of trade is confined to the three Maritime Provinces and to Newfoundland and Quebec.

TABLE 9. FOUNDRY BOXES

Kind of Wood.	Per Cent.	Quantity.	Value	Average Value	Source of Supply			
					Maritime Provinces.	Other Canadian Provinces	United States.	Foreign
		M Ft. B. M.	\$	\$ cts.	M Ft. B. M.	M Ft. B. M.	M Ft. B. M.	M Ft. B. M.
Total	100.0	381	7,196	18.88	381	—	—	—
Spruce	61.2	233	4,292	18.29	233	—	—	—
Pine	37.0	141	2,822	20.01	141	—	—	—
Birch	1.8	7	112	16.00	7	—	—	—

The manufacture of foundry boxes and pattern-making have been treated as separate industries merely to demonstrate the fact that, while iron and steel are used as a substitute for wood, still large quantities of wood are necessary to mould the metal into its final shape. The material included in the above table was used in the making of foundry boxes or flasks. The intense heat to which these boxes are often subjected, and rough handling, usually limit their useful life, under steady use, to one year at the most. Where the use is more constant and permanent, metal flasks are often used. Wood is selected for its cheapness and strength only.

Spruce and pine are practically the only woods used, and come entirely from the Maritime Provinces, being purchased as rough lumber



TABLE 10. FRUIT BOXES AND BASKETS.

Kind of Wood.	Per Cent.	Quantity.	Value.	Average Value.	Source of Supply			
					Maritime Provinces	Other Canadian Provinces	United States	Foreign
		M F B M	\$	\$	M F B M	M F B M	M F B M	M F B M
Total	100.0	85	63	7.42	85			
Poplar	75.3	64	403	6.30	64			
Birch	22.4	19	218	11.47	19			
Spruce	2.3	2	10	5.00	2			

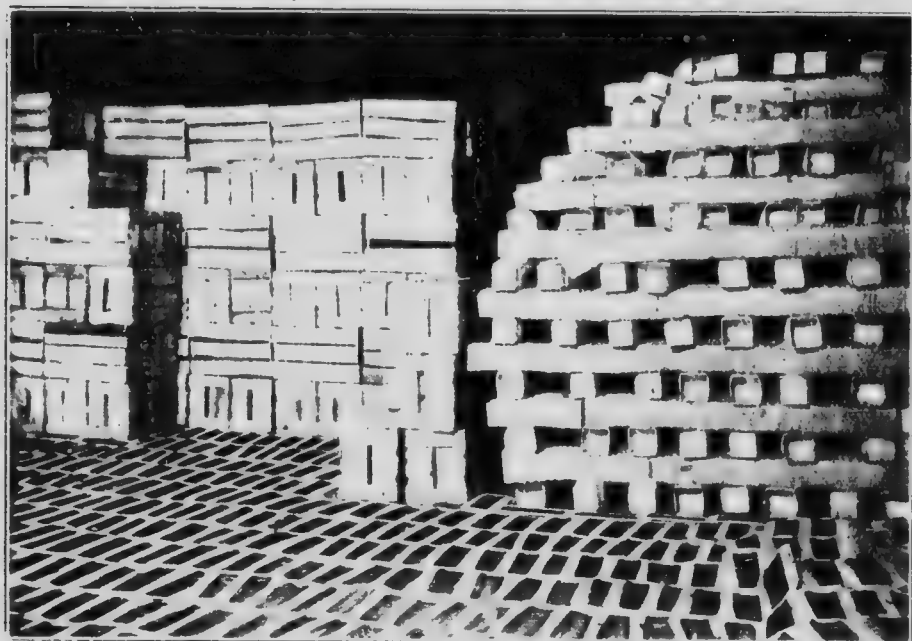


Photo R. G. LEWIS.

Berry Boxes, Crates and Basket Covers of Birch and Poplar Veneer. D. W. Murray, Hantsport, N.S.

This is another industry which is unimportant from the standpoint of quantity of material used, but which uses wood in an unusual way.

Poplar forms three-quarters of the wood used in the manufacture of berry boxes, baskets and crates. The wood is valued in this industry for some of the same reasons that make it desirable for the manufacture of excelsior. It is soft, tough, clear, light in weight and colour, and tasteless and odourless. It is used mostly in manufacturing berry boxes. The wood is purchased in the log, and cut into bolts of the required size from which the veneer is sliced. Some birch is also used for this purpose.

Basket sides, rims and handles are made chiefly from birch, which is purchased in the log, cut into lengths, steamed and placed in a veneer lathe which peels off the veneer. Birch is valued for this purpose on account of its toughness and the fact

that it peels smoothly. The birch logs cannot be peeled down below a diameter of four or five inches. This leaves cores which are perfect cylinders of well-seasoned wood and can be utilized for rollers and plugs for paper rolls, although large numbers are sold or used for firewood when they cannot be otherwise disposed of. Light fruit crates are also made of this peeled birch veneer. Spruce is used for basket bottoms, and spruce deal ends are used for berry-box bottoms.

This industry pays an average price of \$7.42 a thousand for its raw material, which is the lowest price reported by any industry. The prices paid for the three woods are the lowest reported, in each case.

The wood is all native, and the products of the industry are all sold in the Maritime Provinces and Quebec.

TABLE 11. FURNITURE.

Kind of Wood.	Per cent.	Quantity.	Value.	Average Value.	Source of Supply.			
					Maritime Provinces.	Other Canadian Provinces.	United States.	Foreign.
		M Ft.B.M	\$	cts.	M Ft.B.M	M Ft.B.M	M Ft.B.M	M Ft.B.M
Total.....	100.0	4,416	86,561	19.60	3,876	133	403	4
Birch.....	46.1	2,032	29,043	14.29	2,032			
Spruce.....	12.7	558	7,294	13.07	556			
Oak.....	10.0	439	21,842	49.75	188	2		
Beech.....	9.1	400	4,170	10.42	400	5	246	
Maple.....	8.1	368	4,950	13.45	368			
Basswood.....	3.9	170	4,334	25.49	10	192	58	
Pine.....	3.7	161	3,315	20.59	153	8		
Ash.....	1.9	83	2,939	35.41	68			15
Elm.....	1.8	79	3,092	39.14	38	16		25
Poplar.....	1.4	63	1,022	16.22	63			
Tulip.....	1.1	51	3,152	61.80				51
Walnut.....	0.1	6	530	88.33				6
Mahogany.....	0.1	4	735	183.75				
Gum.....		2	143	71.50			2	1

\* Less than one-tenth of one per cent.

This industry comes eighth on the list in point of quantity of material used, consuming 4,416,000 feet of raw material. The products manufactured include all kinds of household furniture, school, office and church furniture, office and store fixtures, refrigerators and picture frames. The line separating the products of this industry from interior finish, included under building construction, is not very clearly marked, as the two industries grade into each other. Many builders' factories manufacture fixtures and furniture, and furniture manufacturers make material for interior finish.

While the total quantity of wood used is comparatively small, the number of different woods used by this industry is above the average. A total of fourteen kinds was reported. Only two of these, spruce and pine, are softwoods. Of the hardwoods, the greater part is made up of native woods. The bulk of the best quality of furniture used in these provinces is imported, as few large firms are engaged in its manufacture. A large percentage of the wood included in the above table is used for the manufacture of cheaper grades of furniture.

Birch, oak, beech, maple, ash, elm and gum are used for 'inside work,' framework, drawer sides and bottoms, backs and all parts that do not show in the finished

product, as well as for those parts which show in the finished product. Quartered and plain oak, walnut and mahogany are used only for 'outside work' in the production of the best classes of furniture, on account of their beautiful grain and figure under a natural finish, and are frequently used in the form of veneer. Spruce, basswood, pine, poplar and tulip are used chiefly for 'inside work' and for rough kitchen furniture. Tulip and basswood are used for core-stock and, with poplar and gum, are the favourite woods for panels.

The material is purchased in the form of rough lumber and small dimension stock at an average price of \$19.60, which is but little above the general average. A comparatively large percentage (12.2) of the material used is purchased outside the provinces. All of the tulip, walnut, and gum, over half the oak, and a considerable part of the basswood, ash and elm comes from the United States. The greater part of the basswood comes from Quebec and Ontario, with smaller quantities of spruce, oak, pine, and elm. The mahogany is all imported from foreign sources.

Furniture factories use a greater quantity of walnut than any other industry, and take all the gum that is imported. They pay the lowest prevalent prices for their beech, maple and walnut. This industry covers a local field of trade confined to the Maritime Provinces, Newfoundland and southeastern Quebec.

TABLE 12—HANDLES AND BRUSH-BACKS.

Kind of Wood.	Per Cent.	Quantity.	Value.	Average Value.	Source of Supply.			
					Maritime Provinces.	Other Canadian Provinces.	United States.	Foreign.
		M Ft. B.M.	\$	\$ cts.	M Ft. B.M.	M Ft. B.M.	M Ft. B.M.	M Ft. B.M.
Total .....	100.0	1,886	31,704	16 81	1,886			
Maple .....	55.9	1,055	16,604	15 74	1,055			
Beech .....	27.8	525	9,530	18 15	525			
Birch .....	12.2	231	4,265	18 46	231			
Poplar .....	2.7	50	865	17 30	50			
Ash .....	0.7	14	310	22 14	14			
Spruce .....	0.3	6	72	12 00	6			
Balsam Fir .....	0.2	4	48	12 00	4			
Pine .....	0.1	1	10	10 00	1			

This industry comes ninth on the list, with a total consumption of 1,886,000 board feet of wood, almost one per cent of the total. Handles for tools of all sorts, broom, brush and whisk handles, whip stocks, and backs for brushes of every description are manufactured by this industry.

Maple, beech, and birch together make up almost 96 per cent of the total quantity used. These three are the most abundant hardwoods in the Maritime Provinces and are specially suited for handle manufacture. Maple is used for the heavier handles and stocks of lumbering tools and picks, being selected for its stiffness and strength. Beech is used where hardness and density rather than strength are required for broom and brush handles and for brush-backs.

Birch is used for the lighter farm and garden tools and for chisel and other wood-working tool handles and brush-backs. Poplar, possessing toughness and lacking strength, is made into brush-backs only. Ash is used for light lumbering tool and axe handles and also for wood-working tool handles and is valued as much for its toughness and elasticity as for its strength. Spruce and balsam fir are used only for light brush-backs.

While a large number of hickory handles are used in axes, hammers and wood-working and other tools, these are all imported in the manufactured state. No hickory was reported as having been manufactured into handles in the Maritime Provinces, as this wood is not cut in commercial quantities in the region.

The material is purchased chiefly in the form of logs, although rough boards, plank and deal are also used. The material is all grown in the Maritime Provinces. Handle and brush manufacturers purchase more beech than is purchased by any other industry and come second only to the manufacturers of hardwood flooring in their use of maple. Most of the products are sold in the Maritime Provinces, and the field of export is confined to Canada.

TABLE 13—H WOOD FLOORING.

Kind of Wood.	Per Cent.	Quantity.	Value.	Average Value.	Source of Supply.			
					Maritime Provinces.	Other Canadian Provinces.	United States.	Foreign.
		M Ft. B. M.	\$	\$ cts.	M Ft. B. M.	M Ft. B. M.	M Ft. B. M.	M Ft. B. M.
Total .....	100 0.	5,488	96,891	17 66	5,476		12	
Birch .....	6	3,505	61,889	17 66	3,505			
Maple .....	24 9	1,448	23,745	16 40	1,448			
Beech .....	11 0	493	8,782	17 81	493			
Oak .....	0 7	42	1,475	35 12	30		12	

While this industry is in reality engaged in the manufacture of building material, its details are described under a separate class from building construction because of the fact that so many factories manufacture hardwood flooring alone. The industry stands sixth on the list, purchases annually 5,488,000 feet of raw material and obtains practically all this material in the Maritime Provinces.

Four kinds of wood only were reported, with birch forming 60.4 per cent of the total. While oak will continue to be the favourite material for flooring in the future, the scarcity of this wood and its high price will prevent its being used as extensively as birch, maple and beech. Birch and beech have such similar qualities for this purpose that they are frequently sold in mixture. Maple being of a lighter colour, is not used so extensively, although larger quantities of this wood go into heavy flooring in public buildings. The qualities of these three woods which fit them for this use are hardness, strength and susceptibility to polish. Oak, besides having these qualities, is valued because of its attractive grain and figure.

The larger firms saw their own logs and work up the choice grades into flooring. Other manufacturers purchase rough hardwood lumber and merely finish the product. The better class of flooring is planed, tongued and grooved at sides and ends and 'hollow-backed' to prevent warping. A small quantity of oak purchased in the United States constitutes the entire import of raw material for this industry, and amounts to less than one per cent of the total.

Birch and maple are used by these manufacturers in greater quantities than by any other industry. Beech is used in greater quantities only by the manufacturers of handles and brush-backs. Raw material was purchased at prices below the average in every case. Finished hardwood flooring is sold in the Maritime Provinces and shipped to Ontario, Quebec, Newfoundland and the United States.

TABLE 14. MACHINERY PARTS.

Kind of Wood.	Per Cent.	Quantity	Value.	Average Value.	Source of Supply			
					Maritime Provinces.	Other Canadian Provinces.	United States.	Foreign.
		M Ft. B. M.	\$	% cts.	M Ft. B. M.	M Ft. B. M.	M Ft. B. M.	M Ft. B. M.
Total	100.0	325	7,925	24.38	286		11	28
Birch	49.2	160	3,645	22.78	160			
Spruce	28.6	93	1,366	14.69	93			
Pine	8.0	26	680	26.15	26			
Hard Pine	6.2	20	873	43.65				20
Maple	4.0	13	615	47.31				6
Douglas Fir	3.1	10	380	38.00			10	
Tulip	0.3	1	95	95.00			1	
Walnut	0.3	1	160	160.00				1
Oak	0.3	1	111	111.00				1

It has been said that no piece of heavy metal machinery can be made without the use of wood for patterns and moulding boxes. It is equally true that very few machines are made in which wood does not appear in some part of the finished product. The quality possessed by wood of resisting the conduction of heat and electricity makes its use imperative for some parts of machinery. For the framework of lighter machines, wood is valued on account of its structural qualities. Nine kinds of wood are used for the wooden parts of machinery, the hardwoods forming over half of this total. Birch is used for handles, rollers, frictions, drum lagging and machinery frames. Spruce, native pine and hard pine are used for mill carriages and saw-mill machinery framework. Maple is used for mill gears and frictions, and Douglas fir for heavy framework in pile-drivers, dredges and steam-shovels. Tulip, walnut and oak are used for small parts of electrical machinery.

The material is purchased as rough lumber and dimension stock of the better grades, 88 per cent coming from the Maritime Provinces. Hard pine, walnut and oak are imported from the United States entirely, together with some of the maple. Douglas fir is purchased from British Columbia, and tulip from Ontario.

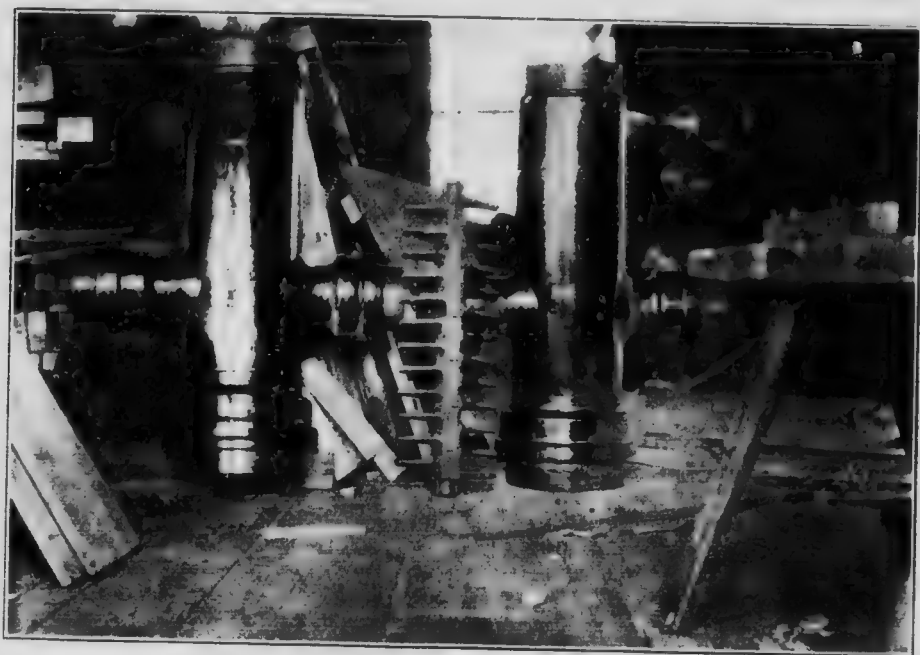
Manufacturers of machinery purchase tulip and walnut at a higher price than is paid by any other industry. The machinery manufactured is sold largely in the Maritime Provinces and Newfoundland.

TABLE 15. PATTERNS.

Kind of Wood.	Per Cent.	Quantity.	Value.	Average Value.	Source of Supply.			
					Maritime Provinces.	Other Canadian Provinces.	United States.	Foreign.
		M Ft. B. M.	\$	% cts.	M Ft. B. M.	M Ft. B. M.	M Ft. B. M.	M Ft. B. M.
Total	100.0	916	33,031	36.06	733		170	10
Pine	92.8	850	29,941	35.27	681		169	
Spruce	5.7	52	1,230	23.81	52			
Oak	0.5	5	900	180.00				5
Cypress	0.5	5	160	32.00				5
Mahogany	0.3	3	600	200.00				3
Cherry	0.1	1	100	100.00			1	

The total quantity of wood used for patterns is small in comparison with that used by other industries described in this bulletin. However, the fact that no substitute has ever been suggested for wood for this purpose demonstrates the importance of this particular use for wood.

Clear, soft, white pine, or 'cork' pine, as it is often called, is considered the best material for patterns in the majority of cases, and forms over nine-tenths of the total. The wood is especially suited for this work because of its softness, the ease with which it can be worked and its quality of holding its shape. Spruce is used for



(PHOTO R. G. LEWIS.)  
Sewer-pipe and Fire-grate Patterns. James Fleaming (Phoenix Foundry), St. John, N.B.

rough work, and oak, cypress, mahogany and cherry for the finest, most intricate patterns which are to be used repeatedly, and must be made of hard, durable wood.

Material for pattern-making is purchased in the form of boards, plank and dimension stock of the best grades obtainable. This industry pays above the average prices for most of its wood, buying the most expensive pine spruce and oak.

Twenty per cent of the wood used is purchased outside of the region. About twenty per cent of the pine is purchased in Ontario and Quebec, the oak and cypress come from the United States, the mahogany from the tropics, and the cherry from Quebec.

The patterns manufactured are all used in foundries in the Maritime Provinces.

TABLE 16. PULLEYS AND BLOCKS

Kind of Wood.	Per Cent.	Quantity	Value.	Average Value.	Source of Supply.			
					Maritime Provinces.	Other Canadian Provinces.	United States.	Foreign.
		M Ft.B.M	\$	cts	M Ft.B.M	M Ft.B.M	M Ft.B.M	M Ft.B.M
Total. ....	100.0	45	1,798	39.96	40			5
Birch. ....	60.0	27	550	20.37	27			
Pine. ....	36.7	12	218	18.17	12			
Lignum-vitæ. ....	11.1	5	1,010	202.00				5
Ash. ....	2.2	1	20	20.00	1			

The increased manufacture of metal blocks, together with keen American competition in wooden ones, has reduced the importance of this industry, which thrived in the Maritime Provinces when the ship-building industry was at its height.

Metal can be substituted for wood in the manufacture of blocks and sheaves, but the weight and hardness of this material tend to detract from its popularity. Hard dense woods like birch, ash and lignum-vitæ have the requisite strength and the advantage of producing less wear on cordage. Birch and pine are used extensively for friction pulleys in power transmission. Lignum-vitæ, in addition to its use in blocks and sheaves, is made into many small articles used in boat rigging and in handling fishing tackle, where it is desirable to reduce friction. These include dead eyes, belay pins, trawl rollers, etc. With the exception of lignum-vitæ, all the wood purchased is native-grown. The native woods are purchased in the form of rough lumber of the best grades. Lignum-vitæ is imported in logs from two to twelve feet long, and from two to ten inches in diameter.

This industry uses the greater part of the lignum-vitæ, which is purchased by only one other industry, and pays the lower price for it. Ash is purchased by block-makers at the lowest average price reported.

The market for ship's blocks is confined to Nova Scotia ports. Belt pulleys are usually sold locally, and fishing tackle and ship fittings are also sold in ports in the Maritime Provinces.

TABLE 17—SPORTING GOODS.

Kind of Wood.	Per cent.	Quantity.	Value.	Average value.	Source of Supply.			
					Maritime Provinces.	Other Canadian Provinces.	United States.	Foreign.
		M Ft.B.M	\$	cts	M Ft.B.M	M Ft.B.M	M Ft.B.M	M Ft.B.M
Total. ....	100.0	41	1,672	40.78	32	7		2
Maple. ....	39.0	16	327	20.44	16			
Ash. ....	36.6	15	600	40.00	8			
Birch. ....	19.5	8	105	13.12	8			
Lignum-vitæ. ....	4.9	2	640	320.00				2

This industry comes last on the list, consuming only 41,000 feet of material and using only four woods.

Maple is made into bowling pins and fishing rods. Ash is used for snow-shoe bows and skis. Bowling balls are turned from lignum-vitæ logs and hockey sticks are manufactured from different kinds of birch. Salmon and trout fishing rods are made from lancewood, greenheart and other tropical hardwoods, purchased in smaller quantities than a thousand feet, board measure. Greenheart costs on an average about fifteen cents a foot, and lancewood about five cents. The native woods are purchased as rough lumber. These manufacturers use less lignum-vitæ than the manufacturers of blocks and shells and pay more for it. These two industries use all the lignum-vitæ imported into these provinces.

TABLE 18 - VEHICLES.

Kind of Wood.	Per Cent.	Quantity.	Value.	Average Value.	Source of Supply.			
					Maritime Provinces.	Other Canadian Provinces.	United States.	Foreign.
		Mft. B.M.	\$	\$ cts.	Mft. B.M.	Mft. B.M.	Mft. B.M.	Mft. B.M.
Total . . .	100.0	1,259	28,455	22.60	1,202	12	45	
Birch.....	43.0	541	10,588	19.57	541			
Ash.....	19.6	247	5,250	21.26	243	2	2	
Spruce.....	12.5	158	2,622	16.59	158			
Maple.....	6.6	83	1,521	18.33	83			
Oak.....	4.9	62	2,185	35.24	61		1	
Pine.....	3.1	39	1,110	28.46	39			
Basswood..	2.7	34	1,470	43.24	14	8	15	
Beech.....	2.3	29	491	16.93	29			
Poplar.....	1.9	24	434	18.08	24			
Tulip.....	1.8	22	1,977	89.86		2	20	
Hickory.....	0.7	9	605	67.22		2	7	
Hemlock.....	0.4	5	80	16.00	5			
Elm.....	0.3	4	80	20.00	3	1		
Tamarack.....	0.1	1	32	32.00	1			
Balsam Fir.....	0.1	1	10	10.00	1			

There are at least a hundred vehicle factories and carriage shops in the Maritime Provinces, but few of these are large concerns, manufacturing vehicles and vehicle supplies for export. This is shown by the fact that this industry comes at the eleventh place on the list, using less than one per cent of the total quantity of wood used.

Most of the vehicles used in the Maritime Provinces and the stock from which vehicles are assembled is manufactured in Ontario, Quebec and the United States. For the most part, this industry manufactures vehicles for local demand only, and many of the firms are merely repair shops.

The vehicle industry is everywhere noted for the large number of different woods it consumes. In most cases each wood is selected for some particular quality it possesses which fits it for a certain part of the finished product. In the Maritime Provinces the better vehicle woods—hickory, elm, etc.—are scarce and expensive. This has led manufacturers in this region to study the qualities of the native hardwoods more carefully and to adapt them to their needs.

Of the fifteen different kinds of wood used, birch and ash are used in greatest quantity, forming 62.6 per cent of the total. Birch is used in all parts of the vehicle, but is valued chiefly for hubs and heavy spokes. Ash is used for light-gear stock and for hames. Spruce, pine, poplar, hemlock, tamarack and balsam fir are used for body-work almost entirely. Maple is valued for its stiffness in heavy framework and gear stock. Oak and beech are used for heavy spokes and rims in trucks and wagons.



Basswood, poplar and tulip are made into panels for body-work. Hickory is one of the best American woods for light vehicle stock, but is too scarce and expensive to be used extensively in these provinces. Its place is taken chiefly by ash. In Ontario and in the United States elm is the favourite material for hubs, but here this wood is supplanted by birch for this purpose. Black locust is used occasionally for gear stock.

Vehicle manufacturers buy their material in every conceivable way from the log to the partly finished stock. This bulletin deals only with those firms who manufacture their own stock from raw material.

Ontario is the leading province in Canada in the manufacture of vehicles and vehicle supplies, but imports over half the raw material used from the United States. The Maritime Provinces use only about one-thirtieth as much raw material as Ontario, but they purchase only 4.5 per cent of this outside the provinces themselves. These importations consist of small quantities of ash, oak, basswood, tulip and hickory from the United States, and ash, basswood, tulip, hickory and elm from Ontario.

Vehicle manufacturers use all the hickory and a greater proportion of the ash than is used by any other industry. They paid the highest price reported for tamarack, and the lowest for elm.

TABLE 19—WOOD-PULP.

Kind of Wood.	Per Cent.	Quantity	Value.	Average Value.	Source of Supply.			
					Maritime Provinces.	Other Canadian Provinces.	United States.	Foreign.
		Mft. B.M.	\$	\$ cts.	Mft. B.M.	Mft. B.M.	Mft. B.M.	Mft. B.M.
Total . . . . .	100.0	43,331	400,269	9.23	43,331			
Spruce . . . . .	88.4	38,318	355,491	9.28	38,318			
Balsam Fir . . . . .	10.3	4,462	39,893	8.94	4,462			
Black locust . . . . .	1.2	499	4,500	9.02	499			
Poplar . . . . .	0.1	30	225	7.50	30			
Pine . . . . .	*	22	160	7.27	22			

\* Less than one-tenth of one per cent.

The figures in the above table have been adapted from the annual bulletin on pulpwood for 1912 (Forestry Branch Bulletin No. 38), by assuming a cord of wood to contain 554 feet, board measure.

Seven mills in Nova Scotia and four in New Brunswick in 1912 consumed 78,217 cords of raw material, valued at an average of \$5.12 a cord. In addition to this, a total of 156,674 cords were exported from these two provinces in the unmanufactured form. This means that out of a total of 234,891 cords of pulpwood produced in the Maritime Provinces, only one-third is manufactured to pulp in the mills of the region, and a quantity of raw pulpwood is exported sufficient to supply at least twenty mills of the same average size as those in Nova Scotia and New Brunswick.

This exported pulpwood is usually 'rossed' or barked before being shipped, but is otherwise in the unmanufactured state.

A total of 55,701 tons of pulp is produced annually. Of this 33,186 tons is ground wood or mechanical pulp; 18,515 tons is sulphite pulp and 4,000 tons is soda pulp.

There are only five kinds of wood used for pulp manufacture, and of these spruce forms a greater part, as it does in most regions where pulp is produced.

In the Maritime Provinces ground wood or mechanical pulp is made of spruce, balsam fir, hemlock, poplar and pine. Sulphite pulp is made from spruce and balsam fir only. Soda pulp is made entirely of spruce.

The wood is purchased in the round, cut into four-foot lengths and is measured by the cord. The material is all native. This industry uses more spruce and balsam fir than any other industry. The average price paid for raw material is below the general average and lower than any other industry except the manufacture of fruit baskets. The prices paid for balsam fir and pine are the lowest reported.

Canadian pulp is made into paper in Canada to a considerable extent, but large quantities are exported to the United States, Great Britain, Japan, China, New Zealand and Newfoundland.

TABLE 20 MISCELLANEOUS.

Kind of Wood.	Per Cent.	Quantity.	Value.	Average Value.	Source of Supply.			
					Maritime Provinces.	Other Canadian Provinces.	United States.	Foreign.
		Mft. B.M.	\$	\$ cts.	Mft. B.M.	Mft. B.M.	Mft. B.M.	Mft. B.M.
Total .....	100.0	1,735	23,224	13.39	1,699		36	
Birch .....	74.0	1,284	15,058	11.73	1,284			
Spruce .....	17.3	300	4,554	15.18	300			
Balsam Fir .....	5.8	100	627	6.27	100			
Cypress .....	2.0	35	2,450	70.00		35		
Pine .....	0.6	11	315	28.64	11			
Maple .....	0.1	2	70	35.00	2			
Cherry .....	0.1	1	110	110.00		1		
Cedar .....	0.1	1	25	25.00	1			
Poplar .....	*	1	15	15.00	1			

\* Less than one-tenth of one per cent.

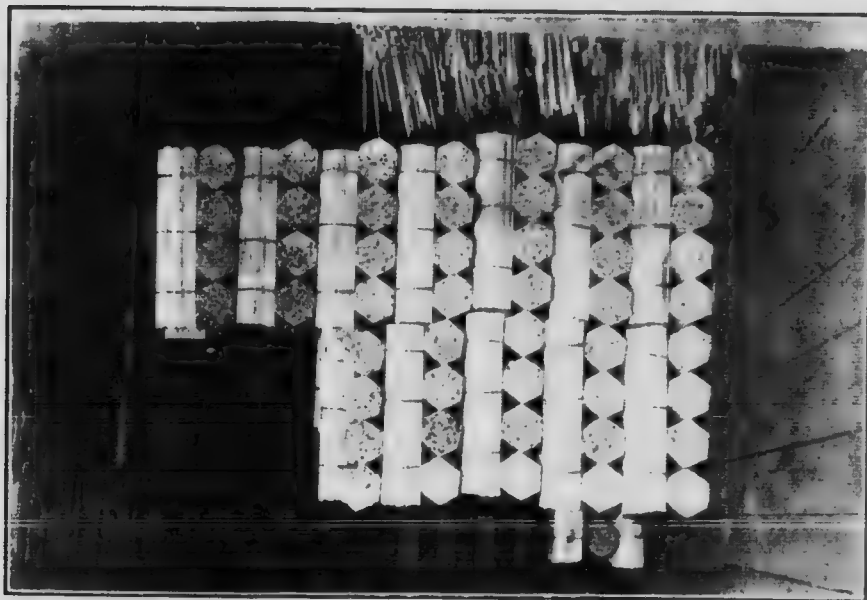
Woodenware, dowels, pumps and tanks, blocks for engravings and all the commodities whose manufacture could not be considered as separate industries, are included under the heading of 'Miscellaneous.' The total quantity of wood used for these products made up 1,735,000 feet of raw material.

Nine kinds of wood were used, with birch forming almost three-quarters of the entire quantity. This wood was used chiefly for wooden ware. Yellow birch was made into clothes-pins and wooden-shanks and was also used for pump-handles and pistons, bait mills and lobster-trap sills. White birch was used also for clothes-pins, wooden-shanks and shoe-pegs, and large quantities of this wood were made into dowels both for domestic and foreign markets.

Spruce and balsam fir laths and palings were made chiefly into lobster traps. This does not mean that only 400,000 feet of lumber were used in making lobster traps, as large numbers of these articles are made by the fishermen themselves, by hand. This figure of 400,000 feet represents the quantity of wood used by firms who made a business of manufacturing these products. A small quantity of cedar was used for lobster-trap bows.

Cypress was imported from the United States for the manufacture of tanks, rats and cisterns. The best selected, clear white pine is used for wooden pumps although iron has superseded this material to a large extent in pump manufacture. Pine and poplar are used for barrel-bungs, maple for picker-sticks and pump-handles, cherry for blocking cuts and engravings and poplar for polishing blocks for mirrors.

Material for pegs, wood-shanks, clothes-pins and dowels is purchased in the log and either sawn into rough lumber or split into billets and worked into shape. Many of these products could be manufactured from waste material left by other industries, and this will probably be the method of manufacture when wood becomes scarcer. The use of white birch for these products is important, as this is another of Canada's so-called 'inferior' species which is cheap and abundant, and for which few economical uses have so far been found. All the other material is purchased in the form of rough lumber. The cypress and cherry, which together made up only about two per cent of the total, were the only woods imported, and came from the United States. The manufacturers of miscellaneous products paid the highest prices recorded for both of these woods. Shanks, pegs, clothes-pins and dowels are exported but the other products enumerated are sold in the Maritime Provinces.



(Photo R. G. Lewis)  
Paper Birch Pole Bundled for Export.  
Sussex Manufacturing Co., Ltd., Sussex, N. B.



(Photo R. G. Lewis)  
Raw Turning Material

## PROPORTION OF KINDS OF WOOD USED BY INDUSTRIES.

Table 'E' has been compiled for the purpose of showing to what extent each of the twenty-eight kinds of wood is used by the different industries. The sign † following a figure in the table indicates that the industry purchased a greater percentage

TABLE 'E' PERCENTAGES OF DIFFERENT KINDS OF WOOD USED IN THE MARITIME PROVINCES BY VARIOUS INDUSTRIES.

Kind of wood.	Agricultural Implements.	Boats and Ship-building.	Boxes and Crating.	Building Construction.	Car Construction.	Coffins, Caskets and Shells.	Cooperage.	Fence-stor.	Foundry Boxes.	Fruit Boxes and Baskets.
Bass		3.5 0.3	23.9 0.3	11.1 13.5	20.4 120.9	0.1 0.3	16.0 17.5			
Birch	0.2 0.7	9.6 1	6.4 0.3	6.4 13.3		19.9	14.5 8.1		0.1	0.1
Burr				100.0						
Cedar		78.3	3.8	17.5						
Cherry		0.1		1.8	195.6					
Chestnut				9.5	190.5					
Cypress		2.5		189.0						
Douglas Fir		6.7		14.8	177.4					
Fir		2.8	9.7	7.8	6.9		151.9			
Gum				3.1	96.1					
Hard Pine		0.7								
Hemlock		0.1	15.3	174.1	0.2	0.9	0.1			
Hickory										
Lignum vitae										
Mahogany		1.8		5.0	189.9					
Maple	1.8	6.5	0.7	6.1	2.2		1.5			
Oak		11.9		9.5	164.1	0.1				
Pine	0.9	5.3	8.2	160.4	15.6	2.8	2.3		0.6	
Poplar		0.3	14.6	2.5		0.3	23.3	147.0		3.5
Redwood		100.0								
Spruce		0.9	9.8	1.1	8.4	0.2	14.3		0.2	
Tamarack		191.7	2.8	1.0						
Tulip			1.8	19.8	169.6					
Walnut				23.1	23.1					
Willow							106.0			

† Less than one-tenth of one per cent.

\* Greatest quantity purchased.

of the total quantity of that particular kind of wood than any of the other industries using it. The sign \* in a blank space indicates the fact that the industry used less than one-tenth of one per cent of the wood.

Other blank spaces indicate that the industry did not use the wood at all.

TABLE 11. PERCENTAGE OF DIFFERENT KINDS OF WOOD USED IN THE MARITIME PROVINCES BY VARIOUS INDUSTRIES.

Kind of Wood	Timber	Hickories and Beeches	Holly and Elm	Maple and Birch	Poplars	Palms and Blocks	Sporting Goods	Vehicles	Wood pulp	Miscellaneous
Alder	11	2.0				0.1	0.0	0.0		
Balsam Fir									0.0	1.0
Basswood	22.6							4		
Beech	19.1	20.1	0.6					1.4		
Birch	10.4	1.8	0.0	1.0		0.2	0.1	4.1		0.8
Bitternut										
Cedar										0.3
Cherry					0.1					0.1
Chestnut										
Cypress					1.1					0.4
Douglas Fir				1.1						
Elm	21.8									
Gum	100.0									
Hard Pine				0.1						
Hemlock									8.4	
Hickory								100.0		
Lignum vitae										
Mahogany	1.8				1.1	67.4	28.6			
Maple	10.0	28.6	0.0	0.4			0.4	2.2		*
Oak	11.6		1.1		0.1			1.0		
Pine	0.7			0.1	3.5			0.2	0.1	*
Poplar	3.3	2.6						1.2	1.6	
Redwood										
Spruce	0.0			0.1	*			0.1	63.0	0.0
Tamarack								0.5		
Tulip	6.1									
Walnut	0.1							2.6		
Willow										

\* Less than one-tenth of one per cent.

0.0 indicates no purchase.

## SUMMARY OF AVERAGE PRICES.

Table 'F' shows, in summary form, the average prices paid by each of the twenty classes of industries, for each of the twenty-eight kinds of wood. The sign \* following a price indicates that it was the highest price paid for this material by any of the

TABLE F.—SUMMARY OF AVERAGE PRICES PAID BY VARIOUS INDUSTRIES FOR DIFFERENT KINDS OF WOOD IN THE MARITIME PROVINCES.

Kind of Wood.	Agricultural Implements.	Boats and Ship-building.	Boxes and Crating.	Building Construction.	Car Construction.	Coffins Caskets and Shells.	Coop-erage.	Excelsior.	Foundry Boxes.	Fruit Boxes and Baskets.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Ash.....		40 08		22 49	*66 00	30 00	23 65			
Balsam Fir.....		17 72	10 87	14 30		14 89	*18 31			
Basswood.....			†12 00	32 98	*45 00	36 00				
Beech.....	20 60	20 97		15 04			*25 03			
Birch.....	16 87	20 52	13 26	20 62	17 98		*24 95		16 00	†11 47
Butternut.....				14 00						
Cedar.....		*109 00	†14 55	21 00						
Cherry.....		† 87 00		100 00	100 00					
Chestnut.....				* 58 00	† 20 00					
Cypress.....		67 33		62 19						
Douglas Fir.....		* 71 83		48 45	† 38 00					
Elm.....		32 40	35 00	* 47 43	28 00		26 61			
Gum.....										
Hard Pine.....		* 47 13		38 96	† 30 90					
Hemlock.....	10 00	12 50	† 8 87	13 43	14 00	14 04	* 18 08			
Hickory.....										
Lignum-vitæ.....										
Mahogany.....		*202 00		†127 27	150 00					
Maple.....	23 46	22 00	25 00	18 11	* 50 00		23 62			
Oak.....	† 25 00	42 50		72 01	34 74	50 00				
Pine.....	18 29	19 97	13 61	26 23	18 18	21 15	22 03		20 01	
Poplar.....		15 00	12 17	17 94		12 40	* 18 51	11 22		† 6 30
Redwood.....		75 00								
Spruce.....	16 94	20 35	12 54	15 37	17 58	14 60	17 97		18 20	† 5 00
Tamarack.....		20 15	† 8 00	17 78						
Tulip.....			† 30 00	38 83	48 85					
Walnut.....				126 67	100 00					
Willow.....							22 22			

\* Highest price paid.

† Lowest price paid.

industries. The sign + indicates the lowest price paid. Blank spaces occur where a wood was not used by an industry at all.

TABLE 'F'—SUMMARY OF AVERAGE PRICES PAID BY VARIOUS INDUSTRIES FOR DIFFERENT KINDS OF WOOD IN THE MARITIME PROVINCES.

Kind of Work.	Furniture.	Handles and Brush-backs.	Hard-wood Flooring.	Machinery Parts.	Pat-terns.	Pulleys and Blocks.	Sport-ing Goods.	Vehicles.	Wood-pulp.	Miscell-aneous.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Ash .....	35 41	22 14				+ 20 00	40 00	21 26		
Balsam Fir.....		12 00						10 00	+ 8 94	+ 6 27
Basswood.....	25 49							43 24		
Beech.....	+ 10 42	18 15	17 81					16 93		
Birch.....	14 29	18 46	17 66	22 78		20 37	13 12	19 57		11 73
Butternut.....										
Cedar.....										25 00
Cherry.....					100 00					*110 00
Chestnut.....										
Cypress.....					+ 32 00					* 70 00
Douglas Fir.....				+ 38 00						
Elm.....	39 14							+ 20 00		
Gum.....	71 50									
Hard Pine.....				43 65						
Hemlock.....								16 00	9 02	
Hickory.....								67 22		
Lignum-vite.....						+202 00	*320 00			
Mahogany.....	183 75				200 00					
Maple.....	+ 13 45	15 74	16 40	47 31			20 44	18 33		35 00
Oak.....	49 75		35 12	111 00	*180 00			35 24		
Pine.....	20 59	10 00		26 15	* 35 27	18 17		28 46	+ 7 27	28 64
Poplar.....	16 22	17 30						18 08	7 50	15 00
Redwood.....										
Spruce.....	13 07	12 00		14 69	* 24 81			16 59	9 28	15 18
Tamarack.....								* 32 00		
Tulip .....	61 80			* 95 00				89 86		
Walnut.....	+ 88 33			*160 00						
Willow.....										

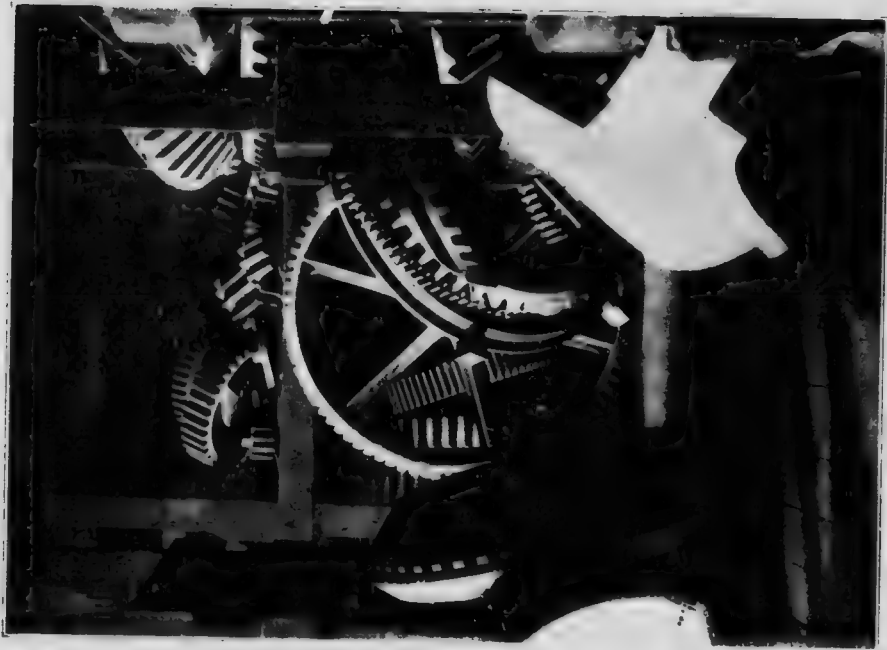
\* Highest price paid.

+ Lowest price paid.





Turning White Pine Flywheel Joint. G. B. Crowe & Co., Turin, N.S.



Patterns for Castings. James Flemming (Phoenix Foundry), St. John, N.B.  
(Photo R. G. Lewis.)

## BY-PRODUCTS.

The economical use of wood by any wood-using industry should include the close utilization of small pieces or pieces of odd dimensions which cannot be used in the main products of the industry. This is often called 'waste utilization,' but such material should no more be considered as waste than coal tar as waste in gas manufacture. In many industries the by-products are an important source of profit, and should be also in wood-using industries.

It often occurs that one manufacturer is burning material under his boilers which another manufacturer could use as the raw material for his industry. The Forestry Branch has been instrumental in bringing many such firms into communication with each other. This, however, is unusual, especially with raw material at the low prices which now prevail. Manufacturers of brush-backs, for instance, in most cases find it more profitable to purchase rough lumber and cut this to the required size than to purchase waste from vehicle, furniture and builders' factories and to sort this out and select the material they could utilize. This is specially true with the larger firms who handle thousands of feet of lumber in a year. With smaller firms it is often profitable to buy waste from other factories, and the Forestry Branch is prepared to give this interchange of material every assistance possible. Many inquiries are received from firms with waste to sell of certain sizes and many also from firms who wish to buy material of certain sizes, and whenever advisable, buyers and sellers are put into communication with each other.

The greatest saving of raw material and the greatest increase in profit is obtained when a manufacturer makes a study of the uses of wood and in his own factory manufactures by-products of saleable value. Not many years ago most box factories purchased their lumber from the saw mills and manufactured boxes from this. At the present time almost every large saw-mill has a box factory in connection with it, and this industry by itself is a source of profit as well as a means of utilizing much of the rough lumber which would otherwise go to the waste-burner.

This saving can be carried into greater detail with equally satisfactory results where more expensive wood is used in manufacturing more complicated products.

The following list of uses for wood-waste is the result of reports received from wood-using industries in the Maritime Provinces and in Ontario.

Sash and door factories sell or use their short ends and trimmings for the manufacture of apple, fish and other boxes, bathroom fittings, baskets, bobbins, brush-blocks, butter-moulds, dowels, firework-woods, heading, game-boards, insulator pins, ladder rounds, letters for signs, lobster pots, match-blocks, novelties, skewers, spindles, spoons, stakes, tool-handles and woodenware. They bale their common sawdust and sell it to butchers for floor covering, to manufacturers of composition novelties, and to screw factories for cleaning screws. They sell shavings for bedding, packing and for drying wet land. Hardwood sawdust is sold for smoking meats. Small waste pieces are sold for making ground wood-pulp, wood-fibre for plaster work, and as a substitute for gravel in concrete masses.

Furniture factories utilize waste in the manufacture of boxes, brush-backs, crates, dowels for export, ink-stands, jardinière stands, waste-paper baskets, rosettes, stools, tabourets and toys, and utilize cuttings of quartered oak and mahogany for wood carvings.

Boat and ship building firms reported the use of their small waste in the manufacture of boxes, boiler blocking, crates, ladder rungs, pickets, plugs, surveyor's stakes, skids, skis, toboggans, tent-pegs, wedges, and whistle-trees. They sold shavings and sawdust for bedding.

Manufacturers of vehicles utilized their waste chiefly in the manufacture of handles for small tools, such as chisels, files, hammers or gimlets, and also for the manufacture of dowels, furniture squares, ladder rungs, pump handles and wheel-barrows.

Agricultural implement makers also have a good opportunity of manufacturing tool handles, which many of them take advantage of. They also utilize waste in the manufacture of washing-machine parts and sell sawdust for concrete mixing.

Box and crate manufacturers use their material down to very small cuttings, and consequently have little useful material left. They make butts of hard maple logs into meat blocks and manufacture some small handles and mouldings and sell their shavings for bedding.

Manufacturers of store and office fixtures make staffs for railway flags and use basswood in making mail-boxes.

Foundry men and heavy-machine manufacturers utilize their waste in making battery boxes, skids, crates, pulleys and small parts of patterns, and sell shavings for bedding.

Novelty makers use small pieces of waste in the manufacture of 'producer gas.' They sell common sawdust for making pincushion frames, hardwood sawdust for smoking meats, and pine and cedar sawdust for metal polish.

Sporting-goods manufacturers reported using waste for spindles, blind-roller parts, brush-blocks and pail-handles.

While sawdust is usually considered as more of a nuisance than a commercial product, it can be utilized for some purposes, depending chiefly on the proximity of the market. A number of methods of chemical utilization of sawdust have been experimented on in the past with varying results. A large lumber concern in British Columbia is erecting a \$50,000 plant for the manufacture of sawdust into briquettes for fuel. This plant will have an output of thirty tons of briquettes a day, which will sell for about five dollars a ton at the mill.

## COMMODITIES MANUFACTURED FROM EACH KIND OF WOOD.

## ALDER.

Cooperage,  
hoops.

## ASH (UNSPECIFIED).

Belay Pins,  
Blocks,  
Boat Building,  
dory oars,  
canoes,  
stems,  
sterns,  
Building Construction,  
doors,  
interior finish,  
moulding,  
wainscotting,  
Car Construction,  
frames,  
inside finish,  
second-class coaches,  
seats,  
Coffins,  
Cooperage,  
hoops,  
slack heading,  
slack staves,  
Furniture,  
beds,

cabinets,  
desks,  
dressers,  
stands,  
church furniture,  
pews,  
Handles,  
axe,  
Locomotives,  
Refrigerators,  
Shells,  
Snowshoe Bows,  
Sporting Goods,  
Vehicles,  
doubletrees,  
light gears,  
hames,  
neck-yokes,  
singletrees,  
whiffletrees,  
carriages,  
sleds,  
wagons,  
poles,

## ASH (BLACK).

Building Construction,  
interior finish,  
moulding.

Vehicles,  
seat frames.

ASH (BROWN). *See* ASH (BLACK).

## ASH (WHITE).

Building Construction,  
interior finish,  
Car Construction,  
frames,  
Furniture,  
book-cases,  
tables,  
legs,  
tops,  
Handles,  
chisel,  
Locomotive Cabs,  
53188—54

Vehicles,  
bars,  
body frames,  
hames,  
head blocks,  
light gears,  
shafts,  
stretchers,  
whiffletrees,  
buggies,  
wagons,  
seats.

ASH (GROUND). *See* ASH (WHITE).

## BALSAM FIR.

## Boat Building.

ceiling,  
frames,  
planking,  
dories.

## Boxes.

## Building Construction.

ceiling,  
clapboard,  
door-frames,  
exterior finish,  
flooring,  
interior finish,  
moulding,  
sash,  
sheathing,  
sheeting,  
window-frames.

## Caskets.

## Coffins.

## Cooperage,

slack heading,  
slack staves,  
tight heading,  
tight staves.

## Crates.

## Crating.

## Handles,

brush.

## Lobster Traps,

sills.

## Pit Boxes.

## Pulp,

ground wood,  
sulphite.

## Shells.

## Vehicles,

sleigh bottoms,  
wagon bottoms.

## BASSWOOD.

## Automobiles,

flooring.

## Building Construction,

balusters,  
casing,  
door panels,  
interior finish,  
wall panels.

## Car Construction,

inside roofing,  
refrigerator cars,  
lining.

## Caskets.

## Coffins.

## Counters.

## Crating.

## Furniture.

drawer bottoms,  
mirror backs,  
church furniture,  
altars.

## Store Fixtures.

## Vehicles.

bodies,  
bottoms,  
boxes,  
dashboards,  
panels,  
carriages,  
sleighs,  
dashboards,  
tops.

## BEECH (UNSPECIFIED).

## Boat Building,

ceiling,  
deadwoods,  
deck-plugs,  
planking,  
posts,  
stems,  
treenails,  
dories,  
keels,  
stems.

## Building Construction,

balusters,  
door-sills,  
flooring,  
interior finish,  
wainscoting.

## Car Stakes.

## Cooperage,

hoops,  
slack heading,  
slack staves.

BEECH (UNSPECIFIED).—*Continued.*

tight heading.  
tight staves,  
Dowels.  
Fish Drums.  
Furniture,  
  chairs,  
    rockers,  
    posts,  
    seats,  
    turnings,  
cot frames,  
mattress frames,  
table legs.

Handles,  
  broom,  
  brush.  
Pulp Binders.  
Vehicles,  
  heavy gears,  
  carriages,  
  carts,  
    axles,  
    gears,  
  sleighs,  
  waggon,  
  trucks.

## BEECH (RED).

Boat Building,  
  keels.

Vehicles,  
  sleighs,  
  wagons,  
  spokes.

## BIRCH (UNSPECIFIED).

Agricultural Implements,  
  harrows,  
  hay-presses,  
  horse-hoes,  
  root-pulpers,  
  seeders,  
  threshers.  
Automobiles,  
  body-frames,  
  dashboards,  
  vencer.  
Berry Boxes.  
Blocks.  
Boat Building,  
  decks,  
  framing timbers,  
  keels,  
  pins,  
  planking,  
  stems,  
  sterns,  
  trimming,  
  dories,  
    bottom sheathing,  
    capping,  
    stems,  
    sterns,  
  scows.  
Boxes.  
Brush Backs.  
Building Construction,  
  balusters,

  door-sills,  
  flooring,  
  interior finish,  
  posts,  
  rails,  
  sheathing,  
  stairs,  
  steps,  
  wainscotting.  
Car Construction,  
  baggage cars,  
  finish,  
  freight cars,  
  frames.  
Car Stakes.  
Cooperage,  
  hoops,  
  slack heading,  
  slack staves,  
  tight heading,  
  tight staves.  
Dowels.  
Engine Beds.  
Fish Drums.  
Fixtures.  
Flasks.  
Foundry Boxes.  
Frictions.  
Fruit Baskets.  
Furniture,  
  cabinets,  
  chairs,  
  seats,

BIRCH (UNSPECIFIED).—*Continued.*

slats,	Turnings.
turnings,	Vehicles,
church furniture,	heavy gears,
cot frames,	hubs,
mattress frames,	whiffletrees,
office furniture,	carriages,
school furniture,	gears,
desks,	carts,
spring frames.	bodies,
Handles,	shafts,
axe,	express carts,
brush,	bodies,
chisel,	pumps,
clay pick,	sleds,
hammer,	sleighs,
hatchet,	slovens,
maul,	bottoms,
miners' pick,	trucks,
sledge.	wagons,
Lobster Traps.	bodies,
Machinery Frames.	body-sills,
Pegwood.	gears,
Portable Mills.	poles,
Pulleys.	rims.
Pulp Binders.	Wheelbarrows.
Refrigerators.	Wood Cutters.
Sporting Goods.	

BIRCH (BLACK). *See* BIRCH (SWEET).BIRCH (GOLD). *See* BIRCH (YELLOW).

## BIRCH (PAPER).

Berry Boxes.	Dowels.
Boat Building.	Furniture.
Boxes.	Hockey Sticks.
Building Construction,	Pegwood.
flooring.	Vehicles,
Car Construction.	body-frames,
Clothes Pins.	floors.
Cooperage,	Wood Shanks.
hoops,	
slack heading,	
slack staves.	

BIRCH (RED). *See* BIRCH (YELLOW).BIRCH (SILVER). *See* BIRCH (PAPER).

## BIRCH (SWEET).

Blocks.	carts,
Building Construction,	boxes,
interior finish,	shafts,
stairs.	farm wagons,
Vehicles,	sleds,
gears,	sleighs,
hubs,	wagons.
wheels,	

## BIRCH (WHITE).

Cooperage,  
hoops.

Hockey Sticks.

BIRCH (WIRE). See BIRCH (WHITE).

## BIRCH (YELLOW).

Bait Mills.  
 Berry Boxes.  
 Block Shells.  
 Boat Building,  
   bottoms,  
   deadwoods,  
   finish,  
   gunwales,  
   keels,  
   planking,  
   ribs,  
   rudders,  
   stems,  
   sterns,  
   water boards.  
 Boxes.  
 Building Construction,  
   balusters,  
   doors,  
     sills,  
   exterior finish,  
   flooring,  
   interior finish,  
   moulding,  
   posts,  
   sheathing,  
   stairs,  
     newel posts,  
     rails,  
     treads.  
 Car Construction.  
 Cases.  
 Clothes Pins.  
 Cooperage,  
   hoops,  
   slack heading,  
   slack staves,  
   tight staves,  
   tight heading.  
 Counters.

Furniture,  
   beds,  
   book-cases,  
   cabinets,  
   dressers,  
   stands,  
   tables.  
 Hockey Sticks.  
 Lumbering Machinery.  
 Pit Shafts.  
 Pumps,  
   handles,  
   pistons.  
 Rollers.  
 Vehicles,  
   axles,  
   axle caps,  
   bars,  
   centre beams,  
   hubs,  
   panels,  
   shafts,  
   spokes,  
   carriages,  
   carts,  
     axles,  
     boxes,  
     gear,  
   express carts,  
     gears,  
   farm wagons,  
   lumber wagons,  
   sleighs,  
     runners,  
   wagons,  
     beams,  
     body-sills,  
     boxes,  
     gears,  
     hubs,  
     poles.  
 Wood Shanks.

## ERNUT.

Building Construction,  
   interior finish.



## CEDAR (EASTERN WHITE).

Boat Building,  
canoes,  
planking,  
ribs,  
spoons,  
Boxes.

Building Construction,  
framing,  
mud-sills,  
Lobster Traps,  
bows,  
sills,  
Trunk Boxes.

## CEDAR (WESTERN RED).

Canoe Planking

## CHESTNUT.

Building Construction,  
doors,  
mouldings.

Car Construction,  
Core-stock,  
Furniture,  
core-stock,  
mission chairs.

## CHERRY.

Blocking,  
cuts, engravings.  
Boat Building,  
cabin finish,  
trimming.

Building Construction,  
interior finish.  
Car Construction,  
vestibule finish.  
Patterns.

## CYPRESS.

Boat Building,  
coaming,  
planking.  
Building Construction,  
doors,  
frames,  
sills,  
exterior finish,  
flooring,  
interior finish,  
gutters.

moulding,  
sash,  
sheathing,  
spouting,  
stairs.  
Cisterns.  
Patterns.  
Snap Flasks.  
Tanks.  
Vats.

## DOUGLAS FIR.

Boat Building,  
booms,  
bowsprits,  
masts,  
spars.  
Building Construction,  
doors,  
interior finish.

Car Construction,  
roofing,  
siding.  
Furniture,  
book-cases.  
Pile Drivers.

## FUM (WHITE).

Boat Building, framing.	Furniture, church furniture, altar rails, pews, household furniture, chairs, tables.
Building Construction, interior finish.	Trunk Slat-
Car Construction, second-class coaches, seats.	Vehicles, bodies, boat stock frames, frames.
Cooperage, hoops, slack heading, slack staves.	

## GREENHART.

Fishing Rods.

## GUM (RED).

Building Construction, interior finish.	tables, drawers.
Furniture, church furniture, seats.	Picture Frames.

HACKMACK. *See* TAMARACK.

## HUMLOCK (UNSPECIFIED).

Agricultural Implements.	Car Stakes.
Boat Building.	Cases.
Boxes.	Coffins.
Building Construction, flooring, framing, interior finish, joists, moulding, sheathing, sheeting.	Cooperage, -slack heading, -slack staves
Car Construction, freight cars, flooring, siding.	Pulp, ground-wood, sulphite.
	Pulp Binders.
	Shells.
	Vehicles, heavy bodies.

## HEMLOCK (WHITE).

Boat Building, framing.	interior finish, wainscotting.
Building Construction,	

## HICKORY.

Furniture,	shafts,
chairs,	shaft bars,
rounds,	spokes,
Vehicles	wheels,
axle-cases,	whiffletrees,
bars,	buggies,
felloes,	rims,
gears,	spokes,
hubs,	carriages,
reaches,	spokes,
rims,	wheels.

JUNIPER. *See* TAMARACK

## LANCEWOOD.

Fishing Rod-

LARCH. *See* TAMARACK

## LIGNUM-VITÆ.

Blocks.	Sheaves,
Bowling Balls.	common,
Dead-eyes.	patent.
Flag-pole Trucks.	Trawl Rollers.

## LOCUST (BLACK).

Vehicles,  
  gears

## MALOGANY.

Boat Building,	Car Construction,
cabin finish,	interior finish,
trimming.	seat arms,
Building Construction.	Furniture,
interior finish,	chiffoniers,
rails.	church furniture.
stairs.	Patterns.

## MAPLE (UNSPECIFIED).

Agricultural Implements.	Building Construction,
Boat Building,	flooring,
ceiling,	interior finish,
deadwoods,	sheathing,
keels,	wainscoting.
stems,	Car Construction,
sterns,	passenger cars,
dories,	flooring.
stems.	Cogs.
Boxes.	

MAPLE (UNSPECIFIED).—*Continued.*

Cooperage,	miners' pick,
hoops,	sledges,
shack heading,	Machinery Parts
shack staves,	On-
Frictions,	Paddles,
Furniture,	Picker Saw,
beds,	Refrigerator
mattress frames,	Sporting Good
spring frames,	Vehicles,
cabinets,	axles,
chairs,	bells,
posts,	cups,
rockers,	boxes,
seats,	gears,
turning-gigs,	hubs,
cots,	stretchers,
frames,	tools,
legs,	carriages,
dressers,	curbs,
Handles,	axles,
axes,	gears,
fish,	spokes,
frames,	sleds,
hoops,	sleighs,
posts,	wagons,
rockers,	Wooden Gears

## MAPLE (HARD).

Agricultural Implements,	Looms
Boat Building,	Mill Gears
frames,	rollers
planking,	Picks
Bowling Pins,	Vehicles
Building Construction,	
flooring,	
interior finish,	
Cogs,	
Farm Machinery,	
Fishing Rods,	
Furniture,	frames,
beds,	spring frames,
dressers,	whims,
stands,	sleighs,
Gear Teeth,	runners,
Handles,	wagons,
axe,	axles,
peavy,	gears,

## MAPLE (SOFT).

Boat Building,	Furniture,
planking,	frames,
Boxes,	Vehicles,
Building Construction,	bodies,
flooring,	light gears,
interior finish,	

## OAK (UNSPECIFIED)

<b>Agricultural Implements.</b>	tables.
<b>Boat Building,</b>	wardrobes.
finish,	church furniture,
framing timbers,	altars,
gunwales,	hymn-boards,
planking,	pews,
dories,	mission furniture,
finish,	chairs,
framing.	desks,
<b>Building Construction,</b>	tables.
doors,	<b>Plough Beams.</b>
flooring,	<b>Refrigerators.</b>
interior finish,	<b>Switch Boards.</b>
posts,	<b>Vehicles,</b>
sheathing,	cross-bars,
balusters,	hubs,
stairs.	neck-yokes,
<b>Car Construction,</b>	poles,
bumpers,	rims,
cross-sills,	shafts,
deadheads,	spokes,
frames.	wheels,
<b>Caskets.</b>	whiffletrees,
<b>Closets,</b>	carriages,
seats,	frames,
tanks.	gears,
<b>Fixtures,</b>	carts,
office,	gears,
store.	sleighs,
<b>Furniture,</b>	benches,
chairs,	bunks,
desks,	runners,
mirror frames,	trucks,
stands,	wheels.

## OAK (RED).

<b>Boat Building,</b>	<b>Building Construction,</b>
ceiling,	doors,
deadwoods,	flooring,
finish,	interior finish,
gunwales,	sheathing.
keels,	<b>Car Construction.</b>
outside rails,	<b>Closets,</b>
pins,	seats,
planking,	tanks.
posts,	<b>Counters.</b>
rudders,	<b>Furniture,</b>
stems,	tables,
sterns,	legs,
dories,	tops,
frames,	<b>Vehicles,</b>
gunwales.	hubs.

## OAK (WHITE).

Boat Building,	tables,
ceiling,	legs,
deadwoods,	tops,
finish,	Patterns,
gunwales,	Picture Frames,
keels,	Show Cases,
planking,	finish,
posts,	frames,
stems,	Vehicles,
timbers,	hames,
Building Construction,	heavy gears,
balusters,	neck-yokes,
doors,	rims,
interior finish,	spokes,
moulding,	whiffletrees,
sash,	carriages,
stairs,	frames,
sheathing,	gears,
Car Construction,	farm wagons,
Furniture,	lumber wagons,
cabinets,	sleighs,
church furniture,	runners,

OAK (GRAY). *See* OAK (WHITE).

## PINE (UNSPECIFIED).

Agricultural Implements,	windows,
threshers,	sash,
Boat Building,	frames,
planking,	screens,
dories,	Car Construction,
scows,	filling,
tugs,	Caskets,
Boxes,	Coffins,
Building Construction,	Cooperage,
balusters,	slack heading,
doors,	slack staves,
door frames,	tight heading,
exterior finish,	tight staves,
flooring,	Crates,
framing,	Crating,
interior finish,	Flasks,
joists,	Follow Boards,
moulding,	Furniture,
sash,	cabinets,
sills,	drawer bottoms,
studding,	kitchen-table tops,
piazza posts,	Machinery Parts,
posts,	Patterns,
screen doors,	Pit Boxes,
sheathing,	Pulley-
veranda columns,	

## PINE (UNSPECIFIED).—Continued.

Pulp,	express wagons,
groundwood,	boxes,
Pumps,	sleds,
caps,	sleighs,
logs,	seats,
Shells,	slovens,
Stamp Mounts	bottoms,
Trunks,	wagons,
Vehicles,	bodies,
seats,	boxes,
body-work,	

PINE (NORWAY). *See* PINE (RED).PINE (OREGON). *See* DOUGLAS FIR.

## PINE (RED).

Agricultural Implements,	framing,
Boat Building,	interior finish,
dories,	sheeting,
planking,	Mill Machinery.
Boxes,	Patterns.
Building Construction,	Rotary Carriages.
clapboards,	

## PINE (WHITE).

Agricultural Implements,	Caskets.
Boat Building,	Cooperage,
bottoms,	slack heading,
ceiling,	slack staves,
deck planking,	tight heading,
engine room-	tight staves.
finish,	Electric Cabinets.
launching ways,	Flasks.
planking,	Furniture,
dories,	book-cases,
bottoms,	church furniture,
motor-boats,	tables,
planking,	wardrobes
Boxes,	Locomotives,
Building Construction,	cab finish.
balusters,	Patterns.
columns,	Pumps,
doors,	caps,
frames,	logs,
exterior finish,	Shells.
flooring,	Show Cases,
interior finish,	doors,
moulding,	frames.
newels,	Templates.
sash,	Vehicles,
sheathing,	floors,
siding,	seats,
stairs,	wagons,
window-frames,	boxes.
Bungs,	Wheelbarrows.
Car Construction,	
filling,	

PINE (NATIVE YELLOW). *See* PINE (RED)

## PINE (HARD) (UNSPECIFIED)

Boat Building.	
decking.	boards.
Building Construction.	sliding.
doors.	doors.
frames.	frames.
sills.	Edgers.
flooring.	Furniture.
interior finish.	couch frames.
mouldings.	inside work.
posts.	tables.
stairs.	Machinery Parts.
risers.	frames.
steps.	Vehicles.
sills.	frames.
Car Construction.	hacks.
doors.	trucks.
frames.	

## PINE (HARD) (LONGLEAF).

Boat Building.	
decking.	Building Construction.
finish.	flooring.
frames.	joists.
planking.	sills.
	Car Construction.
	sills.
	Machinery Frames.

## POPLAR (UNSPECIFIED).

Berry Boxes.	Handles.
Boat Building.	brush.
ribbons.	Polishing Blocks.
Boxes.	mirrors.
Building Construction.	Pulp.
door panels.	ground-wood.
interior finish.	Shells.
wall panels.	Vehicles.
Caskets.	carriages.
Coffins.	boxes.
Cooperage.	floors.
hoops.	panels.
slack heading.	express carts.
slack staves.	boxes.
Crates.	panels.
Crating.	seats.
Excelsior.	sleighs.
Furniture.	bottoms.
kitchen tables.	panels.
tops.	seats.
drawers.	
wash-stands.	



POPLAR (YELLOW). *See* TULIP.

## REDWOOD (CALIFORNIA).

Boat Building,  
 launches,  
 cabin finish,  
 planking.

## SPRUCE (UNSPECIFIED).

Agricultural Implements,	sheathing.
threshers.	siding.
Automobiles,	stairs.
dashboards.	risers.
core-stock.	steps.
Berry Boxes,	verandah posts.
bottoms.	window-frames.
Boat Building,	Car Construction,
booms.	freight cars.
bowsprits,	siding.
ceiling.	flooring.
deck planking.	Car Stakes.
frames.	Cases.
gaffs.	Caskets.
masts.	Clothes Reels.
planking.	Coffins.
spars.	Cooperage,
stringers.	hoops.
timbers.	slack heading.
thwarts.	slack staves.
dories.	tight heading.
oars.	tight staves.
seats.	Cordage Reels.
thwarts.	Crates.
scows.	Crating.
tugs.	Edgers.
Boxes.	Fish Traps.
Building Construction,	Flasks.
balusters.	Foundry Boxes.
boarding.	Furniture.
clapboards.	couch-frames.
doors.	drawer-backs.
frames.	bottoms.
jambs.	book-cases.
panels.	kitchen tables.
exterior finish.	stands.
flooring.	Handles.
framing.	brush.
joists.	Lobster Pots.
rafters.	sills.
sills.	Locomotives.
stringers.	Machinery Parts.
studding.	Mill Carriages.
interior finish.	Mill Machinery.
lattice work.	Moulding Boxes.
moulding.	Oars.
posts.	Paddles.
sash.	Patterns.

SPRUCE (UNSPECIFIED).—*Continued.*

Pit Boxes.	carriages,
Portable Mills.	bodies,
Pulp.	floors,
ground wood.	sideboards,
soda.	drays,
sulphite.	farm wagons,
Refrigerators.	sleighs,
Shells.	boxes,
Skids.	flooring,
Vehicles.	panels,
body-sills.	doors,
bottoms,	bottoms,
boxes,	trucks,
panels,	boxes,
seat-sills.	wagons,
sills.	bodies,
carts,	body panels,
bodies.	bottoms,
body-panels.	boxes,
boxes.	gears,
floors.	Wheelbarrows,
sides.	sides

SPRUCE (RED). *See* SPRUCE (UNSPECIFIED).

## SPRUCE (BLACK).

Boat Building.	Shell Oars.
Building Construction.	Vehicles.
window-frames.	flooring,
Cooperage.	carts,
hoops.	slovens,
slack heading.	trucks,
slack staves.	wagons.
tight heading.	
tight staves.	

SPRUCE (WHITE). *See* SPRUCE (UNSPECIFIED).

## TAMARACK.

Boat Building.	posts,
knees.	verandas,
deck-plugs.	flooring,
ribs.	posts,
timbers.	roofing.
treenails.	Vehicles,
Boxes.	flooring,
Building Construction.	carts,
exterior finish,	slovens,
frames,	trucks.
interior finish,	

## TULIP.

Automobiles, bottoms, seats.	cross-banding.
Base Blocks, electrical apparatus.	Stamp Mounts.
Boxes.	Store Fixtures
Building Construction, balusters, doors, panels, interior finish, stair-rails, panels.	Vehicles, bodies, dashers, panels, carriages, bodies, panels, buggies, bodies, floors.
Car Construction, outside sheeting, name-boards, step-frames.	express carts, seats, sideboards.
Furniture, panels,	wagons, dashboards, seats.

## WALNUT.

Building Construction, interior finish.	church furniture,
Car Construction, interior finish.	altars,
Furniture, outside work,	hymn-boards, pews, rails.
	Switch Boards.

WHITEWOOD. *See* TULIP.

## WILLOW.

Cooperage,  
slack heading.

## CLASSIFIED DIRECTORY OF MANUFACTURERS.

N.B.—Where one firm made more than one class of commodity, a division of the information was necessary, and for this reason the name of a manufacturer in the directory may appear more than once, according to the number of different classes of products that he manufactured.

## AGRICULTURAL IMPLEMENTS.

Bridgetown Foundry Co., Ltd., Bridgetown, N.S.  
 Hall Mfg. Co., Summerside, P.E.I.  
 Hall, Robt., Sheet Harbour, N.S.  
 Hirtle, Jacob, Rose Bay, N.S.  
 Hogan, M. P., Charlottetown, P.E.I. (26 Prince St.)  
 Morrison, J. W., & Son, St. Peter's N.S.  
 Murray, D. W., Hantsport, N.S.  
 Smith Foundry Co., Ltd., The, Fredericton, N.B.  
 Sussex Mfg. Co., Ltd., Sussex, N.B.

## BOATS AND SHIPBUILDING.

Allen, Howard & Co., Allendale, N.S. (Shelburne Co.)  
 Bachmann, G. W., Shelburne, N.S.  
 Balcom, H. J., & Co., Port Dufferin, N.S.  
 Benson, J. H., & Son, Bear River, N.S.  
 Blackburn & Della Torre, Windsor, N.S.  
 Bower Bros., Shelburne, N.S.  
 Bridges, J. F., Tug Boat Co., Ltd., Gagetown, N.B.  
 Canadian Wood-Working Co., Ltd., Yarmouth, N.S. (Water St.)  
 Chestnut Canoe Co., Ltd., Fredericton, N.B.  
 Conrod, Bennett R., Rose Bay, N.S.  
 Dease, Amos, Ship Harbour, N.S.  
 Embree, H. W., & Son, Port Hawkesbury, N.S.  
 Ernst, J., & Sons, Mahone Bay, N.S.  
 Etherington, John, Shelburne, N.S.  
 Fitzgerald, C. M., Georgetown, P.E.I.  
 Fleming, James, St. John, N.B. (130 Pond St.)  
 Fraser Machine & Motor Co., Ltd., The, New Glasgow, N.S.  
 Gratto, M., River John, N.S. (Box 120.)  
 Halifax Graving Dock, Halifax, N.S. (58 Granville St.)  
 Ham, Obed A., Mahone Bay, N.S.  
 Hemphill, Samuel, Georgetown, P.E.I.  
 Hendry, Limited, Liverpool, N.S.  
 Hilshey, Samuel, Chester, N.S. (Lunenburg Co.)  
 Hurst, Geo., Canso, N.S.  
 Legoof, Jas., Richibucto, N.B.  
 Lowe, E., Sheet Harbour, N.S.  
 McAlpine, Kenneth, Shelburne, N.S. (Water St.)  
 McDonald, Jno., St. Peter's, N.S. (Richmond Co.)  
 McGill, Jos. (Estate), Shelburne, N.S.  
 McKay, W. C., & Son, Shelburne, N.S. (Water St.)  
 McLean, Jno. W., Mahone, N.S.  
 McLeod, A. P., St. Peter's N.S. (Richmond Co.)

McLeod, Angus R., L'Ardoise, N.S.  
 Martell, Chas. A., L'Ardoise, N.S.  
 Morrison, J. C., Shelburne, N.S.  
 Muir, S. A., Shelburne, N.S.  
 Mulhall, D. C., Liverpool, N.S., (Main St.)  
 Mullins, James, Tryon, P.E.I.  
 Murray, John, Cape George Harbour, N.S. (Richmond Co.)  
 Nichols & Hodgson, Parrsboro, N.S.  
 Nova Scotia Construction Co., Ltd., The, Halifax, N.S. (159-161 Upper Water St.)  
 Otty, Allan, Gagetown, N.B.  
 Oxner, Arthur, Lunenburg, N.S.  
 Paquet, L. & N., Souris, P.E.I. (King's Co.)  
 Paul, John, Sheet Harbour, N.S.  
 Peters, Benj., L'Ardoise, N.S.  
 Raymond, J. W., Meteghan River, N.S.  
 Redden, Chalmers R., Kentville, N.S.  
 Reynolds, Jno. W., Port Hood, N.S.  
 Rhodes, Currie Co., Ltd., Sydney, N.S. (Townshend St.)  
 Robichau, Jule B., Meteghan, N.S.  
 Schnare, Henry, Mahone Bay, N.S.  
 Shenell, J. W., Souris, P.E.I.  
 Smith & Ruhland, Lunenburg, N.S.  
 Stewart Fisheries, St. Peter's, N.S. (Richmond Co.)  
 Stiles, C. M., Albert, N.B.  
 Walker Bros., Milton, N.S.  
 Westhaver, G. A., & Son, Mahone Bay, N.S.  
 Williams, John, Shelburne, N.S.  
 Young, Chas., Barney's River Station, N.S.

## BOXES AND CRATING.

Acadia Gas Engine Co., Ltd., Bridgewater, N.S.  
 Allen, G. F., & Co., Yarmouth, N.S. (Water St.)  
 Amherst Foundry Co., Ltd., Amherst, N.S.  
 Anderson, J. W. & J., Burnt Church, N.B.  
 Bailey & Underwood, Trenton, N.S.  
 Bailey-Underwood Co., Ltd., New Glasgow, N.S.  
 Bartlett, Edward H., Bartlett Mills, N.B.  
 Bartlett, Jesse, Bartlett Mills, N.B.  
 Beer & Weeks, Charlottetown, P.E.I.  
 Belle-Isle, A. C., Campbellton, N.B. (Water St.)  
 Bigelow & Hood, Truro, N.S. (Young St.)  
 Blenkhorne & Sons, Canning, N.S.  
 Brandram-Henderson, Ltd., Halifax, N.S. (West Young St.)  
 Brown, D. F., Paper Box & Paper Co., Ltd., St. John, N.B. (87 Canterbury St.)  
 Brown Machine Co., Ltd., The, New Glasgow, N.S. (Box 695.)  
 Bryenton, Wm. A., Bryenton, N.B.  
 Canadian Explosives, Ltd., Waverley, N.S.  
 Carritt-Paterson Mfg. Co., Ltd., Halifax, N.S. (89 Water St.)  
 Chisholm & Son, North Tryon, P.E.I.  
 Christie Bros. & Co., Ltd., Amherst, N.S. (Albion S )  
 Consumers' Cordage Co., Ltd., Halifax, N.S.  
 Cooper, Frank L., Fredericton, N.B. (King St.)  
 Copp, Geo. W., Riverside, N.B. (Water St.)  
 Cosmos Cotton Co., Yarmouth, N.S. (Water St.)  
 Creelman, Jas., & Sons, Upper Stewiacke, N.S.

Dakin, F. R., & Co., Pugwash, N.S.  
 Davis & Fraser, Halifax, N.S.  
 Doncaster, G. Wylie, Amherst, N.S.  
 Douglas Bros., St. Stephen, N.B.  
 Durkee, John P., Beaver River, N.S.  
 Emery, W. J., Melville Station, P.E.I.  
 Enterprise Foundry Co., Sackville, N.B.  
 Epps, Dodds & Co., St. George, N.B.  
 Fawcett, Charles, Ltd., Sackville, N.B.  
 Fillmore Bros., Albert, N.B.  
 Fleming, James, St. John, N.B. (130 Pond St.)  
 Flewwelling, G. & G., Mfg. Co., Perry's Point, N.B.  
 Fraser Machine & Motor Co., Ltd., The, New Glasgow, N.S.  
 Hand, C., Halifax, N.S. (193 Jubilee Road).  
 Hartlen, C. W., Milton, N.S.  
 Havelock Mineral Spring Co., Ltd., Moncton, N.B. (Botsford St. Extension.)  
 Hickey & Nicholson Tobacco Co., Ltd., Charlottetown, P.E.I. (120 Prince St.)  
 Hicks, J. H., & Sons, Bridgetown, N.S.  
 Higgins, Mrs. Annie J., Brockfield, N.S.  
 Hill, Chas. F., Amherst, N.S.  
 Hillis & Sons, Ltd., Halifax, N.S. (209-11 Hollis St.)  
 Irving, J. D., Buctouche, N.B.  
 Jollymore, Jas., Liverpool, N.S.  
 Legoo, James, Richibucto, N.B.  
 Lewis, J., & Co., Lewiston, N.S.  
 Loggie, A. & R., Loggieville, N.B.  
 Loggie, W. S., Co., Ltd., Chatham, N.B.  
 McAdam, Howard H., St. Stephen, N.B.  
 McDade, James, St. John, N.B. (Mill St.)  
 MacDonald, A. S., North Sydney, N.S. (King St.)  
 MacDonald & Co., Ltd., Halifax, N.S. (164 Barrington St.)  
 McFarlane-Neill Mfg. Co., Ltd., The St. Mary's, N.B.  
 McGrattan, H., & Sons, St. George, N.B.  
 McKinley & Ogilvie, Glace Bay, N.S. (Reserve St.)  
 McLean, Holt & Co., Ltd., St. John, N.B.  
 Mann Axe & Tool Co., Ltd., St. Stephen, N.B.  
 Maritime Art Glass Works, Ltd., St. John, N.B. (124-132 City Road.)  
 Maritime Foundry & Machine Works, Ltd., Chatham, N.B. (Water St.)  
 Matheson, I., & Co., Ltd., New Glasgow, N.S.  
 Meow, J. A., Ltd., Moncton, N.B. (Main St.)  
 Milne, Courts & Co., St. George, N.B.  
 Miramichi Foundry Machine Works, Chatham, N.B. (Water St.)  
 Moirs, Ltd., Halifax, N.S.  
 Monitor Manufacturing Co., Ltd., The, Fredericton, N.B. (Box 157 King St.)  
 Mott, John P., & Co., Dartmouth, N.S.  
 Murray, D. W., Hantsport, N.S.  
 New Burrell-Johnson Iron Co., Ltd., The, Yarmouth, N.S.  
 Nova Scotia Steel & Coal Co., Ltd., New Glasgow, N.S.  
 O'Brien & Baldwin, St. George, N.B.  
 Oxford Manufacturing Co., Ltd., Oxford, N.S.  
 Perry, Alfred, Port Maitland, N.S.  
 Pictou Foundry & Machine Co., The, Pictou, N.S.  
 Poole, C. H., Lower Montague, P.E.I.  
 Pugwash Manufacturing Co., Ltd., Pugwash, N.S. (Durham St.)  
 Raworth, C. C., Port Elgin, N.B.  
 Record Foundry & Machine Co., Moncton, N.B. (Foundry St.)

Rodden, Chalmers R., Kentville, N.S.  
 Richardson, J. A., Co., Port Shoreham, N.S.  
 Robb Engineering Co., Ltd., Amherst, N.S.  
 Robertson, James, Co., Ltd., The, St. John, N.B.  
 Run, R. M., & Son, Guysborough, N.S.  
 Sackville Woodworkers, Ltd., Sackville, N.B.  
 Snarrord, F. F., & Son, Moncton, N.B. (Cor. Robinson & Victoria Sts.)  
 Snowball, J. B., Co., Ltd., Colebrook, N.S.  
 Standard Drain Pipe Co., Ltd., New Glasgow, N.S.  
 Steel Furnishing Co., Ltd., No. 1, Glasgow, N.S.  
 Stephen Bros., Wind and Junction, N.S.  
 Stewart, Bruce & Co., Ltd., Charlottetown, P.E.I.  
 Stiles, C. M., APort, N.B.  
 Stiles, Senior S., Digby, N.S.  
 Thompson & Spitherland, North Sydney, N.S.  
 Thompson, Arthur W., Mount Vernon, N.B.  
 Thompson Manufacturing Co., Ltd., Grand Falls, N.B.  
 Westlake, R. B., Miramichi Bay, N.S.  
 White, Cross, F. & Son, Ltd., Amherst, N.B.  
 Williamson, J. Fred, Digby, N.B.  
 Wilson, A., & Son, Carleton Place, N.S.  
 Wilson Box Co., Ltd., Fairville Station, N.B.  
 Wolfe, E. R., Miramichi Bay, N.S.  
 Wood, Ernest F., Lake Umbagog, N.B.

## BIDDING—1981—1982

Allcock, H. S., Bideque, P.E.I.  
 Allen & Ferguson, Yarmouth, N.S. (Box 571)  
 Allen, A. W., & Son, Middleton, N.S.  
 Anderson, J. W. & J., Burnt Church, N.B.  
 Anderson, R. G., & Son, Newcastle, N.B.  
 Andrews Bros., Sydney, N.S. (Townshend St.)  
 Baleton, H. J., & Co., Port Duferin (Halifax Co.), N.S.  
 Barrie, D., & Sons, Auld's Cove, N.S. (Guysborough Co.)  
 Barry, Alfred, D., Pictou, N.S.  
 Beattie, John, Carr's Brook, N.S. (Colechester Co.)  
 Bethune, K. W., Sydney Mines, N.S.  
 Blackburn & Della Torre, Windsor, N.S.  
 Blaikie Bros. & Co., Upper St. Lawrence, N.S.  
 Bottomley, Thos., & Son, Harnock, N.S. (13 Plover St.)  
 Brookfield, S. M., Hants, N.S. (58 Granville St.)  
 Brown Bros., East Southampton, N.S.  
 Burgess & Davis, Grand Falls, N.B. (Victoria Co.)  
 Campbell, Jno. L., St. Peter's, N.S. (Richmond Co.) (Box 28)  
 Campbell, Wm. J., North Sydney, N.S. (Regent St.)  
 Canadian Wood-Working Co., Ltd., Yarmouth, N.J. (Water St.)  
 Carson, T., & Son, Pictou, N.S.  
 Chaplin, E. W., Upper Musquodoboit, N.S.  
 Chappel Bros. & Co., Ltd., Sydney, N.S. (67 Leinsterland St.)  
 Chisholm & Son, North Tyron, P.E.I.  
 Christie Bros., & Co., Ltd., Amherst, N.S. (Allison St.)  
 Christie, G. A., Truro, N.S. (227 Upper Prince St.)  
 Christie Wood Working Co., Ltd., St. John, N.B. (245 Cary Road)  
 Churchill, F. E., Darling's Lake, N.S.  
 Clark Bros., Ltd., Bear River, N.S.

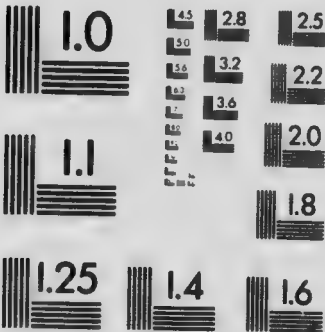
- Comau Bros., Monaghan, N.S.  
 Comau, Pius & Elói, Weymouth, N.S. (D. 26) C  
 Connel, Bennett R., Rose Bay, N.S.  
 Copp, Geo. W., Riverside, N.B. (Water St.)  
 Crowder, Jno. J., Trizhilton, N.S.  
 Cummings, Alex., Goshen, N.S.  
 Currie, Wm., & Son, Windsor, N.S.  
 Davison Parker Co., Halifax, N.S. (D. 1) S  
 Dempster, James, Ltd., Halifax, N.S. (D. 1) S  
 Doyle, Edward, Whiteside, N.S. (Richmond) C  
 Duchemin, A., & Co., Charlottetown, P.E.I. (Queen's College & Water St.) S  
 Dumas, J. W., Grand Anse, N.B.  
 Dunn, L. Jackson, Bear River  
 Eddy, Geo., Co., Ltd., Bathurst, N.B.  
 Eisenhauer, W. J., Mahone Bay, N.S.  
 Emery, W. J., Melville Station, P.E.I.  
 Fattening & Baker, Chester, N.S.  
 Freeman & Gilfillan Co., The, Isaac's Hotel, N.S.  
 Fullerton, D., & Son, Pictou, N.S.  
 Fullerton, J. E., Albert, N.B. (Albert Co.)  
 Gagne, L., Edmundston, N.B.  
 Gault, D., & Sons, New Glasgow, N.S.  
 Grant, Jno. J., New Glasgow, N.S.  
 Haley Bros. Co., Ltd., St. John, N.B. (D. 1) B (D. 1) S  
 Hardwick, J. B., Amnapolis, N.S.  
 Hardwood Planing Mills, Ltd., The, Head of Lake, N.B.  
 Harrow & Kempton, Milton, N.S.  
 Harper, W. W., Charlottetown, P.E.I. (220 Factory St.)  
 Hartland Wood Working Co., Hartland, N.B.  
 Hatfield, W. C., Parrsboro, N.S.  
 Hayden, J. A., Woodstock, N.B. (Main St.)  
 Hayward, John J., Bristol, N.B.  
 Hicks, J. H., & Sons, Bridgetown, N.S.  
 Hillside Woodworking & Mfg. Co., Ltd., Hiram, N.B.  
 Hogan, M. P., Charlottetown, P.E.I. (26 Prince St.)  
 Holland, Wm., & Son, Aylesford, N.S. (King's College Box 41)  
 Humphreys, J. E., Petitecodiac, N.B.  
 Hutchinson, J. W., Berwick, N.S.  
 Irving, J. D., Buctouche, N.B.  
 Jeffers Mfg. Co., Ltd., The, Parrsboro, N.S.  
 Johnson, Chas., Shediac, N.S.  
 Keneux, Jas. A., & Son, Brass Hill, N.S. (Stellarton Co.)  
 King Lumber Co., Chipman, N.B. (Queen's Co.)  
 Kinsman, Goshen, Shelburne, N.S.  
 Kipkey, A. E., Anlover, N.B.  
 Layton, Chas., Sydney Mines, N.S. (P.O. Box 75, Atlantic St.)  
 Lea, Paul, Company, Limited, Moncton, N.B. (96 Westmoreland St.)  
 LeBlanc, Dosithé, St. Louis, N.B.  
 Lowe, H. & S., Charlottetown, P.E.I. (333 King St.)  
 MacArthur, H. E., Ltd., Stellarton, N.S.  
 McDonnell, Alex., Fort Hood, N.S.  
 McDonnell, Jas. D., Margaree Harbour, N.S.  
 McDonald, John & Co., Charlottown, N.B. (D. 1) S  
 McDonald & Rowe Wood Works Co., Charlottetown, P.E.I. (330 Lower Water St.)  
 McElroy, M. A., Lower Derby, N.S.





# MICROCOPY RESOLUTION TEST CHART

(ANSI and ISO TEST CHART No. 2)



APPLIED IMAGE Inc

1653 East Main Street  
Rochester, New York 14609 USA  
(716) 482-4822 - Phone  
(716) 288-5989 - Fax

- McElwee, M. A., Derby Junction, N.B.  
MacInnis, John, & Son, Halifax, N.S. (59-67 Lower Water St.)  
MacKenzie & Graham, Truro, N.S. (Bible Hill).  
McLeod, Angus R., L'Ardoise, N.S.  
McLeod, A. P., St. Peter's, N.S.  
McMaster, E. R., Kingston Station, N.S.  
McNeil, Wm., Windsor, N.S.  
Mangers, Geo., Cap la Ronde, N.S.  
Mangers, Jas., Cap la Ronde, N.S.  
Manbourquette, H. D., L'Ardoise, N.S. (Richmond Co.)  
Margeson, A. C., Kentville, N.S.  
Marshall, G. R., Stewiacke, N.S.  
Martell, Chas. A., L'Ardoise, N.S. (Richmond Co.)  
Martell, Passier, L'Ardoise, N.S.  
Mathisson, B. N., Pugwash, N.S.  
Merlin, I. C., Halifax, N.S. (149 Maynard St.)  
Merlin, Robt., Halifax, N.S. (151 Maynard St.)  
Montague Sash & Door Factory, Montague, P.E.I.  
Mugridge, Arthur, Shediac, N.B. (Box 43).  
Munro, D. A., Wolfville, N.S.  
Murray & Gregory, Ltd., St. John, N.B.  
Murray, D. W., Hantsport, N.S.  
Nadeau, Ernest P., St. Leonard's, N.B.  
Nichols & Hodgson, Parrshoro, N.S.  
Orchard, J., & Sons, Chipman, N.B. (Queen's Co.)  
Oxford Furniture Co., Oxford, N.S.  
Paquet, L. & N., Souris, P.E.I.  
Pertus, Chas. N., Poulamon, N.S. (Richmond Co.)  
Piner, Antoine M., Grand Anse, N.B.  
Pugwash Mfg. Co., Pugwash, N.S. (Durham St.)  
Raworth, C. C., Port Elgin, N.B.  
Ray, S. J., & Son, Aylesford, N.S.  
Redden, Chalmers R., Kentville, N.S.  
Rhodes, Currie Co., Ltd., Amherst, N.S.  
Rhodes, Currie Co., Ltd., Sydney, N.S. (Townshend St.)  
Richardson, Jas. A., Co., Port Shoreham, N.S. (Guysboro Co.)  
Robichaud, E. J., Meteghan Centre, N.S.  
Roderick, Jos. A., & Son, St. John, N.B. (3, 9, 26, 36 Britain St.)  
Ross, Chas. B., Blackville, N.B.  
Ryan, Geo. A., Grand Falls, N.B. (Main St.)  
Sackville Wood-Workers, Ltd., Sackville, N.B.  
Sands, J. J., Sash & Door Factory, Stanley, N.B.  
Sansom, Havelock, Seven Mile Ridge, N.B. (also Campbellton).  
Schurman, M. F., & Co., Ltd., Summerside, P.E.I.  
Scotia Woodworkers, Ltd., Oxford, N.S. (Cor. Duke and Waverley Sts.)  
Silver, Jas. A., Liverpool, N.S.  
Smith, Chas., Lunenburg, N.S.  
Smith, E. J. (Estate of), Shediac, N.B.  
Snowball, J. B., Co., Ltd., Chatham, N.B.  
Spencer Bros. & Turner, Ltd., Truro, N.S. (Prince St.)  
Spencer, John W., Folly Lake, N.S. (Colechester Co.)  
Springhill Mfg. Co., Springhill, N.S. (Cumberland Co.)  
Steadman, F. M., & Co., Digby, N.S.  
Stiles, C. M., Albert, N.B.  
Stothart, Geo. S., Newcastle, N.B.  
Stothart Mercantile Co., Ltd., Newcastle, N.B.

Strum, C. A., & Son, Mahone Bay, N.S.  
 Sussex Mfg. Co., Ltd., Sussex, N.B.  
 Swedish Canadian Lumber Co., Richibucto, N.B.  
 Swim, Henry, Doaktown, N.B.  
 Telfer Bros., Ltd., La Have, Bridgewater, N.S.  
 Thompson Bros., Liverpool, N.S.  
 Tuttle, A. A., Moncton, N.B.  
 Victor Wood Works, Amherst, N.S.  
 Walker Bros., Milton, N.S.  
 Wallace, F. W., Sussex, N.B.  
 Walsh, W. & R., Chatham, N.B.  
 Waterbury, J. P., Petitediac, N.B.  
 West, S. C., Liverpool, N.S. (Box 281).  
 Westhaver, G. A., & Son, Mahone Bay, N.S.  
 Wetmore, E. V., & Son, St. John, N.B. (142 City Road).  
 Williams Bros., Barney's River, N.S.  
 Woodstock Woodworking Co., Carleton, N.B. (cor. Green & Union Sts.)

## CAR CONSTRUCTION.

Canadian Car and Foundry Co., Amherst, N.S.  
 Dominion Atlantic Railway, Kentville, N.S.  
 Eastern Car Company, Limited, New Glasgow, N.S.  
 Intercolonial Railway Co., Moncton, N.B.  
 Nova Scotia Car Works, Halifax, N.S.  
 Wentworth Gypsum Co., Ltd., Windsor, N.S.

## COFFINS, CASKETS AND SHELLS.

Beaton, A. J., & Son, Sydney, N.S. (374 George St.)  
 Black, O. K., Richibucto, N.B.  
 Campbell, George, & Sons, Ltd., Middle Sackville, N.B.  
 Christie Bros. & Co., Ltd., Amherst, N.S.  
 Compton, H. A., Summerside, P.E.I. (Central St.)  
 Corner, Edward, Sheet Harbour, N.S.  
 Durling, Reuben C., Bridgewater, N.S.  
 Fisher, A. J., Elmsdale, N.S.  
 Fullerton, J. E., Albert, N.B.  
 Gagne, L., Edmundston, N.B.  
 Heanigar, Stephen, Noel, N.S.  
 Lauder, A. B., Hillsboro, N.B.  
 Logan & Co., Shubenacadie, N.S.  
 Montague Furnishing Co., Ltd., Montague, P.E.I.  
 Purdy, Jas. H., Bear River, N.S.  
 Riley, Nelson, Milltown, N.B.  
 Sweeney, F. B., Port Maitland, N.S.  
 Tuttle, A. A., Moncton, N.B.  
 Wallace, F. W., Sussex, N.B.  
 Wright, G. D., Charlottetown, P.E.I. (234 Kent St.)

## COOPERAGE.

Acadia Sugar Refinery, Halifax, N.S. (235 Hollis St.), Woodside, N.S., also  
 Moncton, N.B.  
 Adams, Prince A., Oak Park, N.S.

Albert Manufacturing Co., Hillsborough, N.B.  
 Allen, A. W., & Sons, Middleton, N.S.  
 Allen, G. F., & Co., Yarmouth, N.S.  
 Armstrong, D. B., Bloomington, N.S.  
 Awalt Bros., Bayswater, N.S.  
 Bachner, Aubrey P., Paradise, N.S.  
 Beattie, John L., Carr's Brook, N.S.  
 Bezanson & Melvin, Hammond's Plains, N.S.  
 Bezanson, Geo., Berwick, N.S.  
 Bezanson, Howard R., Williamstown, N.S.  
 Bohner, Ephraim, Martin's River, N.S.  
 Boutilier, Amos, Mill Cove, N.S.  
 Bowles, H. B., Cambridge Stn., N.S.  
 Bras D'Or Lumber Co., Ltd., Marble Mountain, N.S. (Inverross Co.)  
 Bruce, C. R., Kingston Station, N.S.  
 Bullivant, J. N., Mosherville, N.S.  
 Cadell, Wm., L'Ardoise, N.S.  
 Corey, Geo. W., East Margareville, N.S.  
 Carty, Albert, Deep Brook, N.S.  
 Chaplin, E. W., Upper Musquodoboit, N.S.  
 Chase Bros., Parker Road (Aylesford), N.S.  
 Chute, Jno. M., Brooklyn Corner, N.S.  
 Clarke Bros., Bear River, N.S.  
 Cook, C. O., Waterville, N.S.  
 Cox, J. Howe, Cambridge Station, N.S.  
 Dargie, Will, Round Hill, N.S.  
 Day, A. A., Head of Jeddore, N.S.  
 De Long, L. S., Barss' Corners, N.S.  
 De Mont, Walter, Gold River, N.S.  
 Doten, O. B., Oak Bay, N.B.  
 Dunlop, Freeman G., Sable River, N.S.  
 Easson, Wm. A., Factory Dale, N.S.  
 Eisenor, Jacob, Martin's River, N.S.  
 Eisenor, Alonzo, Billtown, N.S.  
 Elliott Bros., New Ross, N.S.  
 Fisher, M. T., Dorchester Crossing, N.B.  
 Fiske, R. B., Clarence, N.S.  
 Fraser, Wm., L'Ardoise, N.S.  
 Freeman, W. J., North Kingston, N.S.  
 Freeman & Giffin Co., The, Isaac's Harbour, N.S.  
 Frizzel, Alex., Halifax, N.S.  
 Frode, James, Port Hilford, N.S.  
 Gates, A. Kempton, St. John, N.B.  
 Gates, S., Harmony, N.S.  
 Gates, Silas L., Port Williams, N.S.  
 Giles, Elisha B., Bedford, N.S.  
 Goldsmith, Wm., Perrott Settlement, N.S.  
 Graham & Nicholl, Carleton, N.S.  
 Hadley, Alex., Port Shoreham, N.S.  
 Hadley, Edmond, Port Shoreham, N.S.  
 Halifax Breweries, Ltd., Dartmouth, N.S.  
 Harnish, Chas. A., Greywood, N.S.  
 Harnish, Wm., Mill Cove, N.S.  
 Harris, Chas. E., Deep Brook, N.S.  
 Hart, John G., Boylston, N.S.  
 Hart, Walter, Boylston, N.S.

- Horton, C. W., Mill, N.S.  
 Hatt, Enoch, Iron, N.S.  
 Hatt, Gideon, Simpson Corner, N.S.  
 Hatt, Jacob, Chester Basin, N.S.  
 Hatt, Jos., South Farmington, N.S.  
 Hatt, Lemuel, Torbrook Mines, N.S.  
 Hatt, Merville, Stronach Mountain, N.S.  
 Hatt, Thos., Gold River, N.S.  
 Haverstock, A. E., Hammond's Plains, N.S.  
 Haverstock, H. & Son, Pockwock, N.S.  
 Haver, John, Boylston, N.S.  
 Hayes, Garfield, Cold Brook (King's Co.)  
 Hazle, Jonathan, Aylstone, N.S.  
 Hedges & Bishop, Bishopville, N.S.  
 Henderson, Robert J., Henderson Settlement, N.S.  
 Henderson, Ephraim, Greenwich Ridge, N.S.  
 Henderson, Elmer J., Greenwich, N.S.  
 Hennigan, John, Noel, N.S.  
 Herb, Dan, St. Peter's, N.S.  
 Hiltz, Jas., Bloomington, N.S.  
 Hesse, Wm. A., Bridgetown, N.S.  
 Hunt, Wm. A., Victoria Vale, N.S.  
 Huntley, Joshua, Scott's Bay, N.S.  
 Hurst, John R., Port Hillford, N.S.  
 Jeffers Mfg. Co., Parristown, N.S.  
 Joss, E. R., Lakeville, N.S.  
 Jollymore, Jas., Liverpool, N.S.  
 Kaullach, Henry, Conquerall Mills, N.S.  
 Kedy, J. A., Mahone Bay, N.S.  
 Keddy, Elias, Billtown, N.S.  
 Keddy, Joshua, Prince Albert, N.S.  
 Keizer, Jos. B. (Sr.), Billtown, N.S.  
 Kendrick, J. Smith, Barrington, N.S.  
 Lantz, G. W., Centrelea, also Tupperville, N.S.  
 Lantz, P. B., New Ross, N.S.  
 Legge, Benja., Scott's Bay, N.S.  
 Little, Robt. A., York Mills P. O., N.B. (Co. York).  
 Loggie, W. S., & Co., Ltd., Chatham, N.B., also Loggieville.  
 McGowan, Jas. E., Canard, N.S.  
 MacInias, Jas., Steam Mill, N.S.  
 MacKay, J. F., Northfield, N.S.  
 McMaster, E. R., Kingston Station, N.S.  
 McNeil Bros., Windsor Forks, N.S.  
 McNeill, A. A., Millville, N.S. (King's Co.)  
 Maritime Cooperage Co., Ltd., Woodstock, N.B.  
 Martin, Lyle & Co., East Jordan, N.S.  
 Meister, Freeman, Auburn, N.S. (King's Co.)  
 Miller, C., St. John (also Pokiok), N.B.  
 Miller, A. J., Black Land, N.B.  
 Millet, J. S., (Gaspereaux Cooperage Co.) Gaspereaux, N.S.  
 Millert, Chas., Mochelle, N.S.  
 Millert, F. B., New Minas, N.S.  
 Mitchell, John G., Jeddore Oyster Ponds, N.S.  
 Moren, Lindsay, Pockwock, N.S.  
 Muir, S. A., Shelburne, N.S.  
 Munroe, Fred M., Kingston Village, N.S.

Murray & Gregory, St. John, N.B.  
Murray, D. W., Hantsport, N.S.  
Myers & Son, Head of Jeddore, N.S.  
Myers, I. W., Boylston, N.S.  
Neely, L. O., & Co., Aylesford, N.S.  
Nichols, C. O., Somerset, N.S.  
Nickerson, Jno., Upper New Harbour, N.S.  
Nicoll, J. A., Clyde River, N.S.  
Oiele, Albert, East River, N.S.  
Palmer, Handley, Stanley, N.S. (Hants Co.)  
Parsons, Albert, Cheverie, N.S.  
Patterson, R. W., & Son, South Alton, N.S.  
Pineo, John E., New Minas, N.S.  
Pineo, W. W., Waterville, N.S.  
Porter, Sylvan, Eel Brook, N.S.  
Ramsay & Beeler, Clementsvale, N.S.  
Randolph & Baker, Randolph, N.B.  
Rice, Colin C., Round Hill, N.S.  
Rogers, C. S., Nictaux Centre, N.S.  
Romans, John, English Corner, N.S.  
Ross, John & C. R., Baxter's Harbour, N.S.  
Saugster, Franklin, Upper New Harbour, N.S.  
Saugster, Parker, Upper New Harbour, N.S.  
Saultzman, Jno., Greenwood, N.S.  
Sawler Bros., Somerset, N.S.  
Sawler, Jas. B., Gold River, N.S.  
Sawler, Reuben, Gold River, N.S.  
Sawler, Judson, Brooklyn Corner, N.S.  
Shatford, H. & L., Mill Cove, N.S.  
Smith, D. B., North Kingston, N.S.  
Smith, N. & N., Ltd., Halifax, N.S.  
Steele & Huntley, Scott's Bay, N.S.  
Stevens, Jos., Morden, N.S.  
Stewart Fish Co., Ltd., The, St. Peter's, N.S.  
Strople, Jno., Upper New Harbour, N.S.  
Suttis, David, Indian Harbour Lake, N.S.  
Tait, R. C., Shediac, N.B.  
Thomas, W. C., Bear River, N.S.  
Thomson, B. & H., Hammond's Plains, N.S.  
Thomson, Tremain, English Corner, N.S.  
Trimper, Ivan, Clementsvale, N.S.  
Tupper, A. C., & Son, Scott's Bay, N.S.  
Van Blascow, H., Barton, N.S.  
Vaughan, Geo., Gold River, N.S.  
Veinot, L. R., New Albany, N.S.  
Veinot, Leander, Northfield, N.S.  
Vidito, Emery, Bloomington, N.S.  
Wagstaff, Jno. H., Round Hill, N.S.  
Warne, H. T., & Co., Digby, N.S.  
Webber, Arthur, Jeddore, N.S.  
Wentzel, Lemuel S., Clyde River, N.S.  
West, Geo., Morristown, N.S.  
Westcott, Andrew, Melanson, N.S.  
Williams, Valentine, Queensport, N.S.  
Willis & Baleom, Annapolis Royal, N.S.  
Wind-or Plaster Co., Windsor, N.S.

Wood, Fred. E., Lakeville, N.S.  
 Wood, Jno. W., Cold Brook, N.S.  
 Woodworth, B. & E., Berwick, N.S.  
 Woolaver, Jno., Hantsport, N.S.  
 Wright, Wilber, Hammond's Plains, N.S.  
 Wynacht & Crossland, Woodstock, N.S. (Lunenburg Co.)  
 Young, Hiram, Belleisle, N.S.  
 Zwickler, P. B., Mahone Bay, N.S.

## EXCLUSOR.

Hopper Bros., Truro, N.S. (Arthur & Prince Sts.)  
 Hutchings Co., Ltd., St. John, N.B. (City Road and Queen St.)  
 Little, Delbert, York Mills, N.B.  
 Munro Wire Works, Ltd., New Glasgow, N.S.  
 Scotia Wood-Workers, Ltd., Oxford, N.S. (cor. Duke and Waverley Sts.)  
 Stephen Bros., Windsor Junction, N.S.

## FOUNDRY BOXES.

Amherst Malleable Iron Co., Amherst, N.S.  
 Bishop, Geo., Summerside, P.E.I.  
 Bridgewater Foundry, Bridgewater, N.S.  
 Brown Machine Co., Ltd., The, New Glasgow, N.S. (P.O. Drawer 695).  
 Canadian Car & Foundry Co., Amherst, N.S.  
 Douglas & Co., Atlantic Foundry, Dartmouth, N.S. (67 Dartmouth St.)  
 Enterprise Foundry Co., Sackville, N.B.  
 Fowler, Josiah, St. John, N.B. (97-111 City Road).  
 Fraser Machine & Motor Co., Ltd., The, New Glasgow, N.S.  
 Interoceanic Railway, Moncton, N.B.  
 Lowde Mfg. Co., Kentville, N.S.  
 Lunenburg Foundry Co., Lunenburg, N.S.  
 McLean, Holt & Co., St. John, N.B. (City Road, Albion St. & Stanley St.)  
 McLennan Foundry & Machine Works, Ltd., Campbellton, N.B.  
 McNeill, Wm. P., & Co., Ltd., New Glasgow.  
 Martell, Passia, L'Ardoise, N.S.  
 Matheson, I. & Co., Ltd., New Glasgow, N.S.  
 Millers Foundry & Machine Works, Chatham, N.B.  
 Nickerson, Thomas N., Clarke's Harbour, N.S.  
 Nova Scotia Car Works, Halifax, N.S.  
 Parker, A. H., Georgetown, P.E.I.  
 Record Foundry & Machine Co., Moncton, N.B. (Foundry St.)  
 Robb Engineering Co., Ltd., Amherst, N.S.  
 St. John Iron Works, Ltd., St. John, N.B. (Box 391, Vulcan St.)  
 Smith Foundry Co., Ltd., The, Fredericton, N.B.  
 Sydney Foundry & Machine Works, Ltd., The, Sydney, N.S. (Box 429, Pitt St.)  
 Thompson & Sutherland, North Sydney, N.S.  
 Truro Foundry & Machine Co., Truro, N.S. (Young St.)

## FRUIT BOXES AND BASKETS.

Davison, A. M., Montrose, N.S.  
 Murray, D. W., Hantsport, N.S.  
 Waddell, James E., Reed's Point, N.B.

## FURNITURE.

Allen, A. W., Middleton, N.S.  
 Anderson, R. G., & Son, Newcastle, N.B.



Beer & Weeks, Charlottetown, P.E.I.  
 Bolliver, J. F., Lunenburg, N.S.  
 Chappell Bros. & Co., Ltd., Sydney, N.S. (62 Brookland St.)  
 Chisholm & Son, North Tryon, P.E.I.  
 Christie Wood-Working Co., Ltd., St. John, N.B. (245 City Road)  
 Copp, Geo. W., Riverside, N.B. (Water St.)  
 Dargie, C. B., & Son, Annapolis Royal, N.S.  
 Davison, A. M., Montrose, N.S.  
 Dominion Chair Co., Bass River (Colechester Co.), N.S.  
 Faltenhine & Baker, Chester, N.S.  
 Fullerton, D., & Son, Pictou, N.S.  
 Fullerton, J. E., Albert, N.B.  
 Gagne, L., Edmundston, N.B.  
 Goudy, Hiram G., Hestonaga, N.S.  
 Hardwick, J. B., Annapolis, N.S.  
 Hartland Wood-Working Co., Hartland, N.B.  
 Hogan, M. P., Charlottetown, P.E.I. (26 Princess St.)  
 Hutchings Co., Ltd., St. John, N.B. (City Road and Queen St.)  
 MacArthur, H. E., Ltd., Stellarton, N.S.  
 MacDonald, A. S., North Sydney, N.S. (King St.)  
 McDonnell, Alex., Port Hood, N.S.  
 McLeod Bros., Truro, N.S. (Pleasant St., N.)  
 Mangers, Geo., Cap la Ronde, N.S.  
 Martell, Passia, L'Ardoise, N.S.  
 Mason, F. W. & S., St. Andrews, N.B.  
 Mugridge, Arthur, Shediac, N.B. (Box 43).  
 Munro Wire Works, Ltd., New Glasgow, N.S.  
 Murray & Gregory, Ltd., St. John, N.B.  
 Oxford Furniture Co., Oxford, N.S.  
 Pertus, Chas. N., Poulamou, N.S.  
 Pugwash Mfg. Co., Ltd., Pugwash, N.S. (Durham St.)  
 Reardon, Frank, Halifax, N.S. (40 Barrington St.)  
 Redden, Chalmers R., Kentville, N.S.  
 Rhodes, Currie Co., Ltd., Amherst, N.S.  
 Rhodes Currie Co., Ltd., Sydney, N.S. (Townshend St.)  
 Ryan, Geo. A., Grand Falls, N.B. (Main St.)  
 Sackville Wood-Workers, Ltd., Sackville, N.B.  
 Schurman, M. F., Co., Ltd., Summerside, P.E.I.  
 Scotia Wood-Workers, Ltd., Oxford, N.S. (cor. Duke and Waverly Sts.)  
 Spencer Bros. & Turner, Ltd., Truro, N.S. (Prince St.)  
 Steel Furnishing Co., The, New Glasgow, N.S.  
 Strum, C. A., & Son, Mahone Bay, N.S.  
 Sussex Mfg. Co., Ltd., Sussex, N.B.  
 Thompson Bros., Liverpool, N.S. (271 Waterloo St.)  
 Victor Wood Works, Amherst, N.S.  
 Walker Bros., Milton, N.S.  
 Walsh, Wm. T., Liverpool, N.S. (271 Waterloo St.)  
 Weldon, E. W., Dorchester, N.B.  
 Wetmore, E. V., & Son, St. John, N.B. (142 City Road).  
 Williams Bros., Barney's River, N.S.  
 Windsor Furniture Co., Ltd., The, Windsor, N.S. (Albert St.)  
 Woodstock Wood-Working Co., Ltd., Carleton, N.B. (cor. Green and Union Sts.)  
 Wright, G. D., Charlottetown, P.E.I. (234 Kent St.)

## HANDLES AND BRUSH-BACKS.

Bailey & Underwood, Trenton, N.S.  
 Fowler, Josiah, St. John, N.B. (97-111 City Road).

Griswold, Geo., Bedford, N.S.  
 Henderson, R. J., Henderson Settlement, N.S.  
 London Rubber Stamp Co., Halifax, N.S.  
 McFarlane-Neill Mfg. Co., The, St. Marys, N.B.  
 Maritime Handle Co., Collingwood Corner, N.S.  
 Sands, J. J., Stanley, N.B.  
 Simms, T. S., & Co., Ltd., Fairville, N.B. (Sussexton Bridge R. 14)  
 Soley, J. W., Debert Station, N.S.  
 Thompson Manufacturing Co., Ltd., Grand Bay, N.B.

#### NEW BRUNSWICK

Apple, H. S., Beaufort, P.E.I.  
 Allen, A. W., & Sons, Moncton, N.S.  
 Barrie, D., & Sons, Auld's Cove, N.S.  
 Barry, Alfred D., Pictou, N.S.  
 Beatty, Jno. E., Carr's Brook, N.S.  
 Blackburn & Della Fort, Windsor, N.S.  
 Brown Bros., East Southampton, N.S.  
 Burgess & Davis, Grand Falls, N.B.  
 Campbell, Wm. J., North Sydney, N.S. (Regent St.)  
 Canadian Wood-Working Co., Ltd., The, Yarmouth, N.S. (Water St.)  
 Carson, J., & Son, Pictou, N.S.  
 Christie Wood-Working Co., Ltd., St. John, N.B. (245 City Road).  
 Clark Bros., Bear River, N.S.  
 Crowdis, John J., Frizzelton, N.S.  
 Currie, Wm., & Son, Windsor, N.S.  
 Duchemin, A., & Co., Charlottetown, P.E.I. (Great George & 1 Water Sts.)  
 Dumas, J. W., Grande Anse, N.B.  
 Eddy, Geo., Co., Ltd., Bathurst, N.B.  
 Emery, W. J., Melville Station, P.E.I.  
 Freeman & Gillin Co., The, Isaac's Harbour, N.S.  
 Grant, D., & Sons, New Glasgow, N.S.  
 Haley Bros. Co., St. John, N.B. (1-23 Broad St.)  
 Hardwick, J. B., Annapolis, N.S.  
 Hardwood Planing Mills., Ltd., The, Head of Tide, N.B.  
 Harper, W. W., Charlottetown, P.E.I. (239 Fitzroy St.)  
 Hartland Planing Co., Hartland, N.B.  
 Hayward, Bristol, N.B.  
 Hicks, J., Bridgetown, N.S.  
 Hillsboro Planing and Manufacturing Co., Ltd., Hillsboro, N.B.  
 Holland, Aylesford, N.S. (P.O. Box 41)  
 Hutchison, J. W., Berwick, N.S.  
 Lea, Paul, Co., Ltd., Moncton, N.B. (96 Westmoreland St.)  
 LeBlanc, Dosithe, St. Louis, N.B.  
 Lowe, H. & S., Charlottetown, P.E.I. (313 Kent St.)  
 MacArthur, H. E., Ltd., Stellarton, N.S.  
 MacKenzie & Graham, Truro, N.S. (Bible Hill).  
 McDowell, James D., Margaree Harbour, N.S.  
 McLeod, A. P., St. Peters, N.S. (Richmond Co.)  
 McMaster, E. R., Kingston Station, N.S.  
 Manbourquette, H. D., L'Ardoise, N.S.  
 Mathisson, B. N., Pugwash, N.S.  
 Montague Sash and Door Factory, Montague, P.E.I.  
 Nadeau, Ernest P., St. Leonards, N.B.  
 Paquet, L. and N., Souris, P.E.I.  
 Perry, Joseph F., Muddy Creek, P.E.I.

Pugwash Manufacturing Co., Ltd., Pugwash, N.S. (Durham St.)  
 Raworth, C. C., Port Elgin, N.B.  
 Rodden, Chalmers R., Kentville, N.S.  
 Rhodes Currie Co., Ltd., Amherst, N.S.  
 Rhodes Currie Co., Ltd., Sydney, N.S. (Townshend St.)  
 Robichaud, E. J., Meteghan Centre, N.S. (Main St.)  
 Roderick, Joseph, & Son, St. John, N.B. (39-26-36 Britain St.)  
 Ross, Chas. B., Blackville, N.B.  
 Sands, J. J., Stanley, N.B.  
 Sanson, Havelock, Campbellton, N.B.  
 Scotia Wood-Workers, Ltd., Oxford, N.S. (cor. Duke and Waverley Sts.)  
 Smith, Chas., Lunenburg, N.S.  
 Snowball, J. B. Co., Ltd., Chatham, N.B.  
 Spencer Bros. & Turner, Ltd., Truro, N.S. (Prince St.)  
 Spencer, John W., Folly Lake, N.S.  
 Stothart Mercantile Co., Ltd., Newcastle, N.B.  
 Strum, C. A., & Son, Mahone Bay, N.S.  
 Swin, Henry, Doaktown, N.B.  
 Telfer Bros., Ltd., Bridgewater, N.S. (La Hève St.)  
 Victor Woodworks, Amherst, N.S.  
 Walker Bros., Milton, N.S.  
 Waterbury, J. P., Petiteodiac, N.B.  
 West, S. C., Liverpool, N.S. (P.O. Box 281).  
 Woodstock Woodworking Co., Carleton, N.B. (cor. Green and Union).

## MACHINERY PARTS.

Bridgetown Foundry Co., Ltd., Bridgetown, N.S.  
 Cosmos Cotton Co., Yarmouth, N.S. (Water St.)  
 Cumming, J. W., & Son, Ltd., New Glasgow, N.S.  
 Fleming, James, St. John, N.B. (130 Pond St.)  
 Loyde Mfg. Co., Kentville, N.S.  
 McKenzie & Montgomery, Souris East, P.E.I.  
 McLennan Foundry and Machine Works, Ltd., Campbellton, N.B.  
 McPherson, A., & Sons, New Glasgow, N.S. (Glasgow St.)  
 Maritime Foundry and Machine Works, Ltd., Chatham, N.B. (Water St.)  
 Millers Foundry and Machine Works, Ltd., Chatham, N.B.  
 Nova Scotia Construction Co., Ltd., The, Halifax, N.S. (159-161 Upper Water St.)  
 Oxford Foundry and Machine Co., Ltd., Oxford, N.S.  
 Pietou Foundry and Machine Co., Ltd., Pietou, N.S. (Front St.)  
 Rhodes, Currie Co., Ltd., Sydney, N.S. (Townshend St.)  
 St. John Iron Works, Ltd., St. John, N.B. (Box 391, Vulcan St.)  
 Smith Foundry Co., Ltd., The, Fredericton, N.B.  
 Stair, John, Son & Co., Halifax, N.S. (158 Granville St.)  
 Thompson Bros., Liverpool, N.S. (271 Waterloo St.)  
 Thompson Mfg. Co., Ltd., Grand Bay, N.B.  
 Truro Foundry and Machine Co., Ltd., Truro, N.S. (Young St.)  
 Walsh, Wm. T., Liverpool, N.S. (271 Waterloo St.)  
 Williamson, J. Fred, Indiantown, N.B.  
 Windsor Foundry and Machine Co., Windsor, N.S.

## PATTERNS.

Abrams, John, Sons, Ltd., Moncton, N.B. (54 Foundry St.)  
 Amherst Malleable Iron Co., Amherst, N.S.  
 Bishop, Geo., Summerside, P.E.I.  
 Bridgetown Foundry Co., Ltd., Bridgetown, N.S.

Bridgewater Foundry, Bridgewater, N.S.  
 Brown Machine Co., Ltd., The, New Glasgow, N.S. (P. O. Drawer 695.)  
 Canada Iron Corporation, Ltd., The, Londonderry, N.S.  
 Canadian Car & Foundry Co., Amherst, N.S.  
 Cumming, J. W., & Son, Ltd., New Glasgow, N.S.  
 Douglas & Co., Atlantic Foundry, Dartmouth, N.S. (67 Dartmouth St.)  
 Fleming, James, St. John, N.B. (130 Pond St.)  
 Fraser Machine & Motor Co., Ltd., New Glasgow, N.S.  
 Intercolonial Railway, Moncton, N.B.  
 Loyde Mfg. Co., Kentville, N.S.  
 Lunenburg Foundry Co., Lunenburg, N.S.  
 MacDonald & Co., Ltd., Halifax, N.S. (194 Barrington St.)  
 McLennan Foundry & Machine Works, Ltd., Campbellton, N.B.  
 McNeil, Wm. P., & Co., Ltd., New Glasgow, N.S.  
 McPherson, A., & Sons, New Glasgow, N.S. (Glasgow St.)  
 Mahone Machine Co., Mahone, N.S.  
 Maritime Foundry & Machine Works, Ltd., Chatham, N.B. (Water St.)  
 Maritime Nail Co., Ltd., St. John, N.B. (236 Portland St.)  
 Matheson, L., & Co., Ltd., New Glasgow, N.S.  
 Millers Foundry & Machine Works, Chatham, N.B.  
 Miramichi Foundry & Machine Works, Chatham, N.B. (Water St.)  
 Moir, W. & A., Halifax, N.S. (210 Barrington St.)  
 New Burrell-Johnsen Iron Works, Ltd., Yarmouth, N.S.  
 Nickerson, Thomas N., Clarke's Harbour.  
 Nova Scotia Car Works, Halifax, N.S.  
 Oxford Foundry & Machine Co., Ltd., Oxford, N.S.  
 Parker, A. H., Georgetown, P.E.I.  
 Pieter Foundry & Machine Co., The, Pieter, N.S. (Front St.)  
 Record Foundry & Machine Co., Moncton, N.B. (Foundry St.)  
 Robb Engineering Co., Ltd., Amherst, N.S.  
 Robichaud, John S., Meteghan River, N.S.  
 Saint John Iron Works, Ltd., St. John, N.B. (Box 391, Vulcan St.)  
 Sanders, Anthony H., Yarmouth, N.S.  
 Smith Foundry Co., Ltd., The, Fredericton, N.B.  
 Stewart, Bruce, & Co., Ltd., Charlottetown, P.E.I.  
 Sydney Foundry & Machine Works, Ltd., The, Sydney, N.S. (Box 429, Pitt St.)  
 Thompson & Sutherland, North Sydney, N.S.  
 Thompson Bros., Liverpool, N.S. (271 Waterloo St.)  
 Tompson Bros., Liverpool, N.S.  
 Truro Foundry & Machine Co., Ltd., Truro, N.S. (Young St.)  
 Union Foundry & Machine Works, Ltd., St. John (West), N.B.  
 Walsh, Wm. T., Liverpool, N.S. (1 Waterloo St.)  
 Williamson, J. Fred, Indian River, N.B.  
 Windsor Foundry & Machine Co., Ltd., Windsor, N.S.

## PULLEYS AND BLOCKS.

Dauphinee, Alfred, Lunenburg, N.S. (Montague St., Box 117).  
 Duchemin, A., & Co., Charlottetown, P.E.I. (Great George and Water Sts.)  
 Frizzell, Alex., Halifax, N.S. (McEnridge's Wharf).  
 Holloway, Thomas, & Son, Halifax, N.S. (220 Lower Water St.)  
 Horton, R. N. H., Yarmouth, N.S. (Water St.)  
 McKay, W. C., & Sons, Shelburne, N.S. (Water St.)  
 McPherson, A., & Sons, New Glasgow, N.S. (Glasgow St.)  
 Nichols & Hodgson, Parrsboro, N.S.  
 Oxford Foundry & Machine Co., Ltd., Oxford, N.S.

Tupper, Geo. T., Bear River, N.S.  
 Westhaver, G. A., & Son, Mahone Bay, N.S.  
 Windsor Foundry & Machine Co., Ltd., Windsor, N.S.

## SPORTING GOODS.

Chestnut Canoe Co., Ltd., Fredericton, N.B.  
 Dalzel, J. M., St. John, N.B. (22 Waterloo St.)  
 Fleming, Jas., St. John, N.B. (139 Pond St.)  
 Griswold, Geo., Bedford, N.S.  
 Scribner, D. & Co., St. John, N.B. (59 King St.)  
 Young, Chas., Barney's River Station, N.S.

## VEHICLES.

Arthur, J., & Son, New Glasgow, N.S. (Stellarton Road).  
 Bill & Raworth, Sackville, N.B. (Box 43).  
 Black, O. K., Richibucto, N.B.  
 Boutilier & Geizer, Halifax, N.S. (149 Quinpool Road).  
 Brewing, Walter, Sussex, N.B.  
 Brown, Duncan, Barnesville, N.B.  
 Brown, Stanley Road, Pugwash, N.S.  
 Cameron, Alexander, Hopewell, N.S.  
 Campbell, D. J., North Sydney, N.S. (Peppitt St.)  
 Campbell, Geo., & Sons, Ltd., Middle Sackville, N.B.  
 Carnell, J. J., Halifax, N.S. (17 Stair St.)  
 Chisholm, Roderick, Antigonish, N.S.  
 Clark, H. J., Centreville, N.B. (Box 16, Mechanic St.)  
 Cooper, Frank L., Fredericton, N.B. (King St.)  
 Copp, Geo. W., Riverside, N.B. (Water St.)  
 Cox, Frank, Yarmouth, N.S.  
 Cunningham, Graham, St. John, N.B. (16 Peter St.)  
 Darragh, Jno., Chipman, N.B. (Queen's Co.)  
 Doherty, Miles, Baddeck, N.S. (Prince St.)  
 Durling, Reuben, Bridgewater, N.S.  
 Edgcomb, A. G., St. John, N.B. (115-129 City Road).  
 Eishenaur, A., Mahone, N.S.  
 Elhatton, Peter, Bathurst, N.B.  
 Ernst, Eli, Block House, N.S.  
 Ernst, J. R., & Son, Block House, N.S.  
 Fisher, A. J., Elmsdale, Hants Co., N.S.  
 Francis, J. S., & Sons, Fortune Bridge, P.E.I. (King's Co.)  
 Fraser Bros., Liverpool, N.S.  
 Fraser, W. M., St. John, N.B. (127 Brussels St.)  
 Freeman, W. F., Caledonia, N.S.  
 Glidden, F. A., Woodstock, N.B. (King St.)  
 Griswold, Geo., Bedford, N.S.  
 Hall, Robt., Sheet Harbour, N.S.  
 Hattie Bros., Stellarton, N.S.  
 Hennigar, Stephen, Noel, N.S. (Hants Co.)  
 Hirtle, Jacob, Rose Bay, N.S. (Lunenburg Co.)  
 Hogan, M. P., Charlottetown, P.E.I. (26 Prince St.)  
 Holland, Wm., & Son, Aylesford, N.S. (P.O. Box 41).  
 Hutt, Alexander, Dartmouth, N.S. (188 Portland St.)  
 Kelly, Michael F., St. John, N.B. (94 Brussels St.)

- Kupkey, A. E., Andover, N.B.  
 Lamplin, A., Halifax, N.S. (Argyle St.)  
 Lauder, A. B., Hillsboro, N.B.  
 Lauder, S., Hillsboro, N.B.  
 Logan & Co., Shubenacadie, N.S.  
 McCallum, J. A., Sydney, N.S.  
 McDade, Christopher, St. John, N.B. (2 Westmorland Road).  
 MacDonald, A. S., North Sydney, N.S. (King St.)  
 McDonald, A. D., St. Peter's, N.S.  
 McDonald, Alex., Port Hood, N.S.  
 McDonald, Peter, Antigonish, N.S.  
 McElwee, M. A., Derby Junction, N.B.  
 McFarlane-Neill Mfg. Co., Ltd., The, St. Mary's, N.B. (Y. Co.)  
 McFarlane's Wagon Works, Nashuaasis, N.B.  
 McGinn, Patrick, Fredericton, N.B. (King St.)  
 McInnis Bros., Charlottetown, P.E.I. (203 Kent St.)  
 McInnis, Jno., River Dennis Station, N.S. (Inverness Co.)  
 McInnis, N. J., St. Peter's, P.E.I.  
 McIntosh, Jno. J., Goshen, N.S.  
 MacKay & Maxwell, Ltd., Sydney, N.S. (167 Pitt St.)  
 McKenna, C. & Son, Kelly's Cross, P.E.I. (Lot 20).  
 McKenzie & Montgomery, Souris East, P.E.I. (King's Co.)  
 McKinnon, Dan, Brook Village, N.S.  
 McNeill, Thos., Tryon, P.E.I.  
 Magowen, Martin, St. George, N.B.  
 Malone, D. B., Miscouche, P.E.I.  
 Mangers, Geo., Cap la Ronde, N.S.  
 Masson, James, Fairville, N.B. (Main St.)  
 Meed, Jno., Bristol, N.B.  
 Merlia, Robt., Halifax, N.S. (151 Maynard St.)  
 Millard, Wm. T., Liverpool, N.S. (Box 150, Union St.)  
 Moore, B. L., Milling, Wagon & Axle Works, Moore's Mills, N.B.  
 Morrison, J. W., & Son, St. Peter's, N.S.  
 Muir, F. W., Shelburne, N.S.  
 Nova Scotia Carriage & Motor Car Co., Amherst, N.S.  
 Orchard, J., & Sons, Chipman, N.B.  
 Pelfrey, A. C. J., Bridgetown, N.S.  
 Poole, T. S., Arendia, N.S.  
 Ray Bros., Yarmouth, (Brown St.)  
 Ray, S. J., & Son, Aylesford, N.S.  
 Richard, C. C., Buctouche, N.B.  
 Ryer, Jos., Barrington, N.S.  
 Scantlebury, Geo., Charlottetown, P.E.I. (92 Kent St.)  
 Smith, J. R., Avondale Station, N.S.  
 Soley, J. W., Debert Station, N.S.  
 Stiles, C. M., Albert, N.B.  
 Stiles, Ezra, & Co., Albert, N.B.  
 Stothart, Geo. S., Newcastle, N.B.  
 Stothart Mercantile Co., Ltd., Newcastle, N.B.  
 Stroud & Eveleigh, Halifax, N.S. (143, 145 Maynard St.)  
 Swim, Henry, Donkton, N.B.  
 Underwood, Bailey, Trenton, N.S.  
 Waye, Chas., St. Peter's, P.E.I.  
 Weldon, E. W., Dorchester, N.B.  
 Wilkinson, Charles, Centreville, N.B.  
 Willes Bros., Halifax, N.S. (154 Grafton St.)

Wilson Bros., Grand Falls, N.B.  
 Windsor Carriage Co., Windsor N.S.  
 Wortman, Martin, Boundary Creek, N.B.  
 Zinc, Sylvanus, Rose Bay, N.S.

## WOOD-PULP.

Campbell Lumber Co., Weymouth, N.S.  
 Clyde River Pulp Co., Clyde River, N.S.  
 Dominion Pulp Co., Chatham, N.B.  
 Harmony Pulp & Paper Co., Ltd., Harmony Mills, N.S.  
 La Have Pulp Co., New Germany, N.S.  
 Macleod Pulp Co., Ltd., Miltor, N.S.  
 New Brunswick Pulp & Paper Co., Millerton, N.B.  
 Nova Scotia Wood Pulp & Paper Co., Mill Village, N.S.  
 Partington, Edward, Pulp & Paper Co., St. John, N.B.  
 St. Croix, Lumber Co., The, Hartville, N.S.  
 St. Croix Paper Co., Hartville, N.S.  
 St. George Pulp & Paper Co., St. George, N.B. (Head Office, Norwalk, Conn., U.S.)  
 St. John Pulp & Paper Co., St. John, N.B.

## MISCELLANEOUS.

Baleon, H. J., & Co., Port Dufferin, N.S. (Halifax Co.)  
 Canadian Wood-Working Co., Ltd., The, Yarmouth, N.S. (Water St.)  
 Crowe, G. B., & Co., Truro, N.S.  
 Davison, A. M., Montrose, N.S.  
 Duchemin, A., & Co., Charlottetown, P.E.I. (Great George and Water Sts.)  
 Durkee, N. P., Pleasant Valley Corner, N.S.  
 Fitzgerald Bros., Dingwall, N.S.  
 Frizzell, Alex., Halifax, N.S., (MacFatrige's Wharf).  
 Holloway, Thomas, & Son, Halifax, N.S. (220 Lower Water St.)  
 Lewis, J., & Co., Lewiston, N.S.  
 Loggie, A. & R., Richibucto, N.B.  
 Maritime Art Glass Works, Ltd., St. John, N.B. (124-132 City Road).  
 Muir, S. A., Shelburne, N.S.  
 Mullins, James, Tryon, P.E.I.  
 Oxford Manufacturing Co., Ltd., Oxford, N.S.  
 Perry, Alfred, Port Maitland, N.S.  
 Poole, C. H., Lower Montague, P.E.I.  
 Rhodes Currie Co., Ltd., Amherst, N.S.  
 Sussex Manufacturing Co., Ltd., Sussex, N.B.  
 Wesley, F. C., Co., St. John, N.B. (59 Water St.)

## PUBLICATIONS ISSUED BY THE FORESTRY BRANCH.

**Annual Reports—Director of Forestry—1904 and following years.**

- Bulletin**
1. Tree Planting on the Prairies.
  2. Planting and Care of a Forest of Evergreens.
  3. Dominion Forest Reserves.
  4. Forest Products of Canada (up to 1908).
  5. Forest Conditions in Crownest Valley, Alberta. (Out of print.)
  6. Riding Mountain Forest Reserve. (Out of print.)
  7. Forest Fires in Canada, 1908. (Out of print.)
  8. Forest Products of Canada, 1908.
  9. Forest Fires in Canada, 1908. (Out of print.)
  10. The Farmer's Plantation.
  11. Forest Products of Canada, 1909: Lumber, Square Timber, Lath and Shingles.
  12. Forest Products of Canada, 1909: Pulpwood.
  13. Forest Products of Canada, 1909: Poles. (Out of print.)
  14. Forest Products of Canada, 1909: Cross-ties Purchased.
  15. Forest Products of Canada, 1909.  
(Being Bulletins 11, 12, 13, 14, 15 and 16.)
  16. Forest Fires and Railways.
  17. Timber Conditions on the Proposed Route of the Hudson Bay Railway.
  18. The Rocky Mountains Forest Reserve.
  19. Forest Products of Canada, 1909: Tight and Black Cooperage; Boxes and Box Shooks.
  20. Forest Products of Canada, 1909: Tannin and Tanning Extracts.
  21. Forest Products of Canada, 1910: Poles.
  22. Forest Products of Canada, 1910: Cross-ties.
  23. Forest Products of Canada, 1910: Timber Used in Mining Operations.
  24. Wood-using Industries of Canada, 1910: Agricultural Implements and Vehicles, Furniture and Cuts and Veneers.
  25. Forest Products of Canada, 1910: Lumber, Square Timber, Lath and Shingles. (Out of print.)
  26. Forest Products of Canada, 1910: Pulpwood. (Out of print.)
  27. Forest Products of Canada, 1910: Cooperage.
  28. Forest Products of Canada, 1910.  
(Bulletins 21, 22, 23, 24, 25, 26 and 27.)
  29. Timber Conditions in the Lesser Slave Lake Region.
  30. Forest Products of Canada, 1911: Pulpwood.
  31. Forest Products of Canada, 1911: Tight and Black Cooperage.
  32. The Turtle Mountain Forest Reserve.
  33. Forest Conditions in the Rocky Mountains Forest Reserve.
  34. Forest Products of Canada, 1911: Lumber, Square Timber, Lath and Shingles.
  35. Forest Products of Canada, 1911: Poles and Cross-ties.
  36. Wood-using Industries of Ontario.
  37. Forest Products of Canada, 1911.  
(Bulletins 30, 31, 34 and 35.)
  38. Forest Products of Canada, 1912: Pulpwood. (Out of print.)
  39. Forest Products of Canada, 1912: Poles and Ties.
  40. Forest Products of Canada, 1912: Lumber, Square Timber, Lath and Shingles.
  41. Timber Conditions in the Little Smoky River Valley (Alta.) and Adjacent Territory.
  42. Co-operative Forest Fire Protection.
  43. Forest Products of Canada, 1912.  
(Bulletins 38, 39 and 40.)
  44. Wood-using Industries of the Maritime Provinces.
- Circular**
5. Planning a Tree Plantation for a Prairie Homestead.
  6. Preservative Treatment of Fence-posts.
  7. Manitoba a Forest Province.
  8. The Forest Products Laboratories.
  9. Chemical Methods for Utilizing Wood Wastes.
  10. The Care of the Woodlot.